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Nonmetallic Mineral Processing Plants Background Information for Promulgated Standards

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16. ABSTRACT

Standards of performance for the control of particulate matter emissions from nonmetallic mineral processing plants are being promulgated under the authority of Section 111 of the Clean Air Act. These standards apply to new, modified, or reconstructed facilities at nonmetallic mineral processing plants including crushers, grinding mills, screens, bucket elevators, conveyor belt transfer points, bagging operations, storage bins, and enclosed truck and railcar loading stations. This document contains a summary of the comments on the proposal of these stnadards in the Federal Register (48 FR 39566), the Environmental Protection Agency's response to these comments, and a summary of the changes to the standards since proposal.

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Emission Standards and Engineering Division

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, NC 27711

April 1985

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ENVIRONMENTAL PROTECTION AGENCY

Background Information and Final Environmental Impact Statement for Nonmetallic Mineral Processing Plants

Prepared by:

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1. The promulgated standards of performance will limit emissions of particulate matter from new, modified, and reconstructed nonmetallic mineral processing plants. Section 111 of the Clean Air Act (42 U.S.C. 7411), as amended, directs the Administrator to establish standards of performance for any category of new stationary source of air pollution that "...causes or contributes significantly to air pollution which may reasonably be anticipated to endanger public health or welfare."

2. Copies of this document have been sent to the following Federal Departments: Labor, Health, and Human Services, Defense, Transportation, Agriculture, Commerce, Interior, and Energy; the National Science Foundation; the Council on Environmental Quality; State and Territorial Air Pollution Program Administrators; EPA Regional Administrators; Local Air Pollution Control Officials; Office of Management and Budget; and other interested parties.

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1.0 SUMMARY

On August 31, 1983, the Environmental Protection Agency (EPA) proposed standards of performance for nonmetallic mineral processing plants (48 FR 39566) under authority of Section 111 of the Clean Air Act. Public comments were requested on the proposal in the Federal Register. There were 52 commenters composed mainly of industries, trade associations, and State and local regulatory agencies. Also commenting were Senators and Members of Congress. The comments that were submitted, along with responses to these comments, are summarized in this document. The summary of comments and responses serves as the basis for the revisions made to the standards between proposal and promulgation.

1.1 SUMMARY OF CHANGES SINCE PROPOSAL

In response to the public comments and as a result of the EPA's reevaluation, certain changes have been made in the standards since proposal. The changes are in the following areas:

- Replacement of existing facilities with similar new facilities of equal or smaller size,
- Enclosure of affected facilities in buildings,
- Stipulations for use of Method 9 in measuring fugitive opacity,
- Reporting and recordkeeping provisions for wet scrubbers, and
- Rewording of definitions.

1.1.1 Replacement of Existing Facilities with Similar New Facilities of Equal or Smaller Size

Under §60.670, the following provision has been added: An existing facility which is replaced by a piece of equipment of equal or smaller size as defined in §60.671, and having the same function as the existing facility is exempt from the provisions of §§60.672, 60.674, and 60.675. An owner or operator making such a replacement must comply with reporting requirements added under §60.676. However, if every affected facility in a production line is replaced, then all new facilities must comply with the stack and fugitive emission limits and other provisions of §§60.672, 60.674, and 60.675. A production line is defined as all affected facilities connected together either directly or by a conveying system. The purpose of this change is to exempt the replacement of individual affected facilities with new facilities of the same or smaller size from compliance with the emission limits of the standards and to gather information on the frequency of their occurrence. The EPA does not believe replacement of individual affected facilities with new facilities of equal or smaller size occurs often. Because such replacements did not seem likely, EPA did not fully analyze the impacts of requiring control of such replacements. Rather, EPA analyzed the impacts of the proposed standards on new process lines at new plants and capacity expansions at existing plants, and control of entire production lines was found to be reasonable. Several commenters, however, claimed that replacement of existing facilities with new facilities of the same size is common. Control technology is generally designed for an entire production line rather than for individual pieces of equipment. Therefore, if replacements of individual affected facilities are frequent, costs and economic impacts, because of the additional costs associated with retrofitting, could be significant. The EPA has requested specific data on the frequency of such replacements from industry representatives, but has not received any. Due to the large and dispersed nature of the industry, representative data are difficult for trade associations or industry representatives to obtain. To resolve this issue, EPA is exempting replacement of existing facilities with new facilities of equal or smaller size from compliance with the particulate emission limits of the standards, unless an entire production line is replaced. The EPA continues to believe replacements are unlikely, and therefore expects no significant impact on emissions reductions which could be achieved by the standards. Recordkeeping provisions have been added to the standards under §60.676 to allow the Agency to obtain statistics on the frequency and type of such replacements which occur. The EPA will reassess the need for this exemption in 4 years during the review of the standards.

In connection with the provisions for replacement of existing facilities with new facilities of equal or smaller size, discussed above, definitions of "size", "production line", and "conveying system" have been added under §60.671. Reporting provisions have also been added. Under §60.676 an owner or operator replacing an existing facility with a new facility of equal or smaller size must report to the State or the EPA regional office and to the EPA Office of Air Quality Planning and Standards (1) the type and size of the existing facility and the new facility, (2) a description of the control device used to reduce particulate emissions from the existing facility, and (3) the age of the existing facility.

1.1.2 Enclosure of Affected Facilities in Buildings

Sections 60.672 and 60.675 have been expanded to specify the emissions standards and methods of determining compliance that apply if affected facilities are enclosed by a building. Commenters interpreted the proposed standards to mean that the enclosure of affected facilities in buildings would not be allowed as a control technique. They also requested that emissions be measured outside such buildings to determine compliance. The EPA agrees that in some cases the level of control achieved by enclosing affected facilities in buildings is equivalent to best demonstrated technology (BDT). Under the final standards, affected facilities inside an unvented building will be determined to be in compliance if there are no visible fugitive emissions from the building as determined by EPA Method 22. If the building is vented and there are no visible fugitive emissions, and the emissions from the vent meet the stack particulate standards of 0.05 g/dscm and 7 percent opacity, then the affected facilities inside the building will be determined to be in compliance. A vent is defined as an opening through which there is mechanically induced airflow for the purpose of exhausting from a building air carrying particulate matter emissions from one or more affected facilities. If emissions from the building exceed the "no visible emissions" fugitive standard or the stack standards, then opacity must be measured at each affected facility inside the building, and fugitive opacity standards (15 percent for crushers without capture systems and 10 percent for all other facilities) must be met by each affected facility. These provisions allow compliance measurements to be taken outside the building if the building can meet a "no visible emissions" fugitive standard and the specified stack emissions standards.

1.1.3 Stipulations for the Use of Method 9 in Measuring Fugitive Opacity

Section 60.675(c) has been expanded to clarify the use of Method 9 to determine compliance with the fugitive emissions standards in cases where emissions from two or more facilities interfere. Commenters were concerned that where wet dust suppression is used, there may be situations where opacity of fugitive emissions from a single affected facility cannot be measured due to the continuous interference of emissions from other facilities. The EPA has found that in most cases changing observer positioning or waiting for a change in wind conditions will allow the opacity of emissions from individual facilities to be read. In such cases, opacity of emissions from each affected facility must be measured using Method 9. However, sometimes facilities may be located above and below one another so that emissions from one facility pass through another facility and exit as a combined emissions stream. The EPA has found such situations to be rare, but the regulation has been clarified to address them. Under 60.675(c)(4), when emissions from two or more facilities continuously interfere, an owner or operator may show compliance with the fugitive emission limits in §60.672 by (1) causing the opacity of the combined emissions stream from the facilities to meet the highest fugitive opacity standard applicable to any of the individual affected facilities contributing to the emissions stream, or (2) separating emissions so that opacity of emissions from each affected facility can be read to determine compliance with the applicable limits specified for each facility in §60.672. Emissions could be separated by moving the equipment or by installing a physical barrier or ductwork to separate emissions. Under the standards, the owner or operator would also have the option of capturing the emissions and ducting them to a control device. These options give plants flexibility in complying with the regulations and may allow them to continue using wet dust suppression to comply with the regulation even when fugitive emissions from two or more facilities continuously interfere.

1.1.4 Reporting and Recordkeeping Provisions for Wet Scrubbers

New provisions for the reporting of scrubber operating parameters have been added in §60.676. Commenters expressed concern that measurements had to be made weekly, but there were no reporting requirements specified in the proposed standards. Under the final standards, the owner or operator is required to record the scrubber liquid flow rate to the scrubber and the change in pressure of the gas stream across the scrubber during the initial performance test and daily thereafter. Reporting of the results of the initial performance test are required by the General Provisions. Semiannual reporting of subsequent readings is required by the standards only when one or more of the daily readings of the pressure drop or liquid flow rate differs by more than ±30 percent from the readings of the most recent performance test.

1.1.5 Rewording of Definitions

Some wording changes were made in the definitions section of the regulation to clarify the intent of the definitions of crusher, fixed plant, and portable plant. A definition of "truck dumping" was added to clarify the EPA's intent that dumping of minerals into any screening operation, feed hopper, or crusher from trucks or other types of movable vehicles including front end loaders and skip hoists are exempt from the requirements of §60.672.

1.2 SUMMARY OF IMPACTS OF PROMULGATED ACTION

1.2.1 Alternatives to Promulgated Action

The regulatory alternatives are discussed in Chapter 6 of the Background Information Document for the proposed standards (EPA-450/3-83-001a). These regulatory alternatives reflect the different levels of emission control from which one is selected that represents the best demonstrated technology, considering costs, nonair quality, health, and environmental and economic impacts for nonmetallic mineral processing plants. These alternatives remain the same.

1.2.2 Environmental Impacts of Promulgated Action

The environmental impacts of the standards are presented in Chapter 7 of the Background Information Document for the proposed standards. A review of these impacts indicated no changes were necessary and, therefore, the impacts remain unchanged since proposal.

The analysis of environmental impacts presented in the Background Information Document for the proposed standards constitutes the final Environmental Impact Statement.

1.2.3 Economic and Energy Impacts of Promulgated Action

The economic impacts of the standards are discussed in Chapter 8 and Supplement A of the Background Information Document for the proposed standards. These economic impacts have been reviewed and remain unchanged for the promulgated standards.

The energy impacts of the standards are discussed in Chapter 7 of the Background Information Document for the proposed standards and remain unchanged for the promulgated standards.

2. SUMMARY OF PUBLIC COMMENTS

A total of 52 letters commenting on the proposed standards and the Background Information Document for the proposed standards were received. A public hearing on the proposed standards was not requested. A list of commenters, their affiliations, and EPA docket numbers assigned to their correspondence is given in Table 2-1.

For the purpose of orderly presentation, the comments have been categorized under the following topics:

(1) Need for Standards and Selection of Source Category

(2) Selection of Emission Sources for Control

(3) Selection of Affected Facility and Reconstruction Provisions

(4) Emission Control Technology

(5) Economic Impact

(6) Environmental Impact

(7) Energy Impact

(8) Selection of Best Demonstrated Technology

(9) Selection of Format for Standards

(10) Selection of Emission Limits

(11) Legal Considerations

(12) Test Methods and Monitoring

(13) Reporting and Recordkeeping

(14) Wording of Regulation

(15) Miscellaneous

The comments, the issues they address, and the EPA's responses are discussed in the following sections of this chapter. Changes to the regulations are summarized in Subsection 1.2 of Chapter 1.

TABLE 2-1. LIST OF COMMENTERS ON THE PROPOSED STANDARDS OF PERFORMANCE FOR NONMETALLIC MINERAL PROCESSING PLANTS

Docket Entry Number[a]	Commenter/Affiliation
IV-D-1	Gary R. Gawreluk Research-Cottrell, Inc. P.O. Box 1500 Somerville, NJ 08876
IV-D-2	Robert L. Reynolds Lake County Air Pollution Control District Courthouse - 255 N. Forbes St. Lakeport, CA 95453
IV-D-3	V. R. Snyder The General Crushed Stone Company P.O. Box 231 Easton, PA 18042
IV-D-4	J. N. Siegfriend Manville Service Corporation Ken-Caryl Ranch Denver, CO 80217
IV-D-5	S. J. Major Lone Star Cement P.O. Box 420 Norfolk, VA 23501
IV-D-6	Barbara O. Patala National Science Foundation Washington, D.C. 20550
IV-D-7	Joseph L. Harrison Indiana Mineral Aggregates Association 4475 Allisonville Road Vantage Point - Suite 525 Indianapolis, IN 46205
IV-D-8	Charley L. Shelton Peter Kiewit Sons' Co. P.O. Box 1055 Glendale, AZ 85311

TABLE 2-1. (Continued)

Docket Entry Number[a]	Commenter/Affiliation
IV-D-9	Mohamed T. El-Ashry, Ph.D. Tennessee Valley Authority Knoxville, TN 37902
IV-D-10	Dick Serdoz State of Nevada Department of Conservation and Natural Resources Capital Complex Carson City, NV 89710
IV-D-11	Robert A. Wilkinson, P.E. The Ohio Aggregates Association 20 South Front St., Suite 200 Columbus, OH 43215
IV-D-12	John G. Wheeler Capitol Aggregates Incorporated P.O. Drawer 33240 San Antonio, TX 78233
IV-D-13	Charles Ellis Texas Industries, Inc. 8100 Carpenter Freeway Dallas, TX 75247
IV-D-14	Keith M. Bentley Georgia-Pacific Corporation 133 Peachtree St., N.E. P.O. Box 105605 Atlanta, GA 30348
IV-D-15	Richard A. Morris National Industrial Sand Association 900 Spring St. Silver Spring, MD 20910
IV-D-16	Richard A. Morris National Sand and Gravel Association 900 Spring St. Silver Spring, MD 20910

TABLE 2-1. (Continued)

Docket Entry Number[a]	Commenter/Affiliation
IV-D-17	Michael J. Hart NSPS Task Group c/o Flatiron Sand and Gravel Company P.O. Box 229 Boulder, CO 80306
IV-D-18	Edward L. Hynes Rocky Mountain Energy 10 Long Peak Drive Box 2000 Broomfield, CO 80020
IV-D-19	Stanley F. Olenn The Refractories Institute 3760 One Oliver Plaza Pittsburgh, PA 15222
IV-D-20	Charles A. Collins The State of Wyoming Department of Environmental Quality Equality State Bank Bldg. 401 W. 19 St. Cheyenne, WY 82002
IV-D-21	Dow E. Prouty B. L. Anderon Incorporated 123 Third Ave., S.W. P.O. Box 2007 Cedar Rapids, IA 52406
IV-D-22	Mike Huddleston, P.E. Asphalt Pavement Association of Oregon 3747 Market St., N.E. Salem, OR 97301
IV-D-23	William Gibbons Tulsa City-County Health Department 4616 East 15th Tulsa, OK 74112

TABLE 2-1. (Continued)

Docket Entry Number[a]	Commenter/Affiliation
IV-D-24	Lloyd Kostow Oregon Department of Environmental Quality 522 S.W. Fifth Ave. Box 1760 Portland, OR 97207
IV-D-25	Mallory S. May III Gifford-Hill & Company, Inc. P.O. Box 47127 Dallas, TX 75247
IV-D-26	F. A. Renninger, P.E. National Crushed Stone Association 1415 Elliot Place, N.W. Washington, D.C. 20007
IV-D-27	Kenneth W. McNichols Iowa Limestone Producers Association Inc. P.O. Box 6006 Des Moines, IA 50309
IV-D-28	John W. Sullivan Kentucky Crushed Stone Association Inc. Depot Place P.O. Box 326 Frankfort, KY 40602
IV-D-29	C. B. Rash Ozark-Mahoning Company Rosiclare, IL 62982
IV-D-30	Stanley Isaacson Gendler Stone Products Company 1075 Polk Blvd. Des Moines, IA 50311
IV-D-31	Jack M. Pryor, P.E. Pennsylvania Glass Sand Corporation Berkeley Springs, WV 25411

TABLE 2-1. (Continued)

Docket Entry Number[a]	Commenter/Affiliation
IV-D-32	Jack M. Pryor, P.E. Floridin Company Berkeley Springs, WV 25411
IV-D-33	E. H. Shuler Getty Oil Company 3810 Wilshire Blvd. Los Angeles, CA 90010
IV-D-34	John P. Gleason, Jr. and Robert A. Emmett Brick Institute of America 1750 Old Meadow Road McLean, VA 22101
IV-D-35	James H. Williams National Limestone Institute 1840 Wilson Blvd., Suite 203 Arlington, VA 22201
IV-D-36	J. Allen Overton, Jr. American Mining Congress Suite 300 1920 N. Street, N.W. Washington, D.C. 20036
IV-D-37	John M. Clouse for James Lents, Ph.D. Colorado Department of Health 4210 East 11th Ave. Denver, CO 80220
IV-D-38	Roger N. Miller Windsor Minerals Inc. P.O. Box 680 Windsor, VT 05089
IV-D-39	Jackie Swigart Commonwealth of Kentucky National Resources and Environmental Protection Cabinet Office of the Secretary Frankfort, KY 40601

TABLE 2-1. (Continued)

Docket Entry Number[a]	Commenter/Affiliation
IV-D-40	Bill R. Starr Weaver Construction Co. P.O. Box 550 Iowa Falls, IA 50126
IV-D-41	John W. Harris International Minerals and Chemical Corporation Mundelein, IL 60060
IV-D-42	Judith M. Lake Air Pollution Control District County of San Diego 9150 Chesapeake Dr. San Diego, CA 92123
IV-D-43	Greg Sorlie State of Washington Department of Ecology Mail Stop PV-11 Olympia, WA 98504
IV-D-44	George J. Moritz International Salt Company Abington Executive Park Clarks Summit, PA 18411
IV-D-45	Senator Roger Jepsen U.S. Senate Washington, D.C. 20510
IV-D-46	Copper Evans, Member of Congress 127 Cannon House Office Bldg. Washington, D.C. 20515
IV-D-47	Neal Smith, Member of Congress 2373 Rayburn House Office Building Washington, D.C. 20515
IV-D-48	Senator Lawton Chiles U.S. Senate Washington, D.C. 20510

TABLE 2-1. (Continued)

Docket Entry Number[a]	Commenter/Affiliation
IV-D-49	Jim Leach, Member of Congress 1514 Longworth House Office Building Washington, D.C. 20515
IV-D-50	Sherwood Boehlert, Member of Congress 1641 Longworth House Office Building Washington, D.C. 20515
IV-D-51	Tom Tauke, Member of Congress 435 Cannon House Office Building Washington, D.C. 20515
IV-D-52	William M. Wilson, Jr. Sutherland, Asbill & Brennan First Atlanta Tower Atlanta, GA 30383

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[a] The docket number for this project is OAQPS-78-11. Dockets are on file at EPA Headquarters in Washington, D.C., and at the Office of Air Quality Planning and Standards in Durham, N.C.

2.1 NEED FOR STANDARDS AND SELECTION OF SOURCE CATEGORY

2.1.1 Comment: (IV-D-3, IV-D-12, IV-D-15, IV-D-16, IV-D-17, IV-D-21, IV-D-26, IV-D-27, IV-D-30, IV-D-35, IV-D-36, IV-D-40, IV-E-4)

Eleven commenters questioned the EPA's determination that nonmetallic mineral processing plants are sources of emissions that cause or contribute significantly to air pollution that may reasonably be anticipated to endanger public health or welfare. Six of these commenters stated that nonmetallic mineral processing plants are insignificant sources of fugitive particulate emissions when compared to other open sources of these emissions. Four commenters also stated that there are no documented cases, that they are aware of, of anyone being harmed by the dust from the crushing and processing of limestone. One commenter questioned whether the determination was made on the basis of scientific fact. Several commenters felt this industry is not a significant source of emissions into the ambient air because the emissions do not leave the plant boundaries.

Response:

Under Section 111(b)(1) of the Clean Air Act, the EPA Administrator is required to publish and periodically revise a list of categories of stationary sources. A source category is to be included on the list "... if in his judgement it causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare." The Act then requires that NSPS be proposed for all listed source categories. The language of the Act does not require absolute proof that health or welfare has been harmed by emissions from a source category before the category is listed. In fact, the legislative history stresses two points:

(1) The Act is preventive, and regulatory action should be taken to prevent harm before it occurs; and

(2) The Administrator should consider the contribution of each single class of sources to the cumulative impact of all particulate matter emitters.

On August 21, 1979, the Administrator promulgated a priority list of source categories for which New Source Performance Standards (NSPS) are to be promulgated (44 FR 49225). This action was required under the 1977 Clean Air Act Amendments [Section 111(f)]. Development of the priority list was initiated by compiling data on a large number of source categories from the literature. Major stationary source categories were subjected to a priority ranking procedure using the three criteria specified in Section 111(f) of the Clean Air Act. In this ranking, first priority was given to quantity of emissions, second to potential impact on health and welfare, and third priority was given to the mobility and competitive nature of the source category. Using these criteria, the nonmetallic mineral industry was ranked

13th out of 59 major source categories on the priority list (44 FR 49225). Support for this decision can be found in the background documents for the priority list (EPA-450/3-79-023 and EPA-450/3-78-019).

Nonmetallic mineral industries were included on the NSPS priority list due to potentially significant emissions of particulate matter. Particulate matter is a criteria pollutant which has been determined to be an air pollutant which may endanger public health and welfare and for which a national ambient air quality standard (NAAQS) has been promulgated. (Limestone dust and other dusts emitted by the nonmetallic mineral industry are types of particulate matter.) The Administrator's determination that particulate emissions may endanger public health and welfare is documented in the document, "Air Quality Criteria for Particulate Matter and Sulfur Oxides" (EPA-600/8-82-029a-c).

Standards of performance required by Section 111 play a unique role under the Clean Air Act. Their main purpose is to require new sources, wherever located, to reduce emissions to the level achievable by the best technological system of continuous emission reduction considering the cost of achieving such emission reduction, any nonair quality health and environmental impact, and energy requirements [Section 111(a)(1)]. Congress recognized that establishing such standards would minimize increases in air pollution from new sources, thereby improving air quality as the nation's industrial base is replaced over time. In the past, proof has not been required that emissions from specific individual plants cause health and welfare impacts. Rather, sources are regulated by category, and the goal is the reduction of emissions of pollutants, such as particulate matter, which have been shown to impact health and welfare.

The series of determinations outlined above adequately supports the EPA's decision that the nonmetallic mineral industry is a significant source of air pollution which may endanger public health and welfare, and that an NSPS must be promulgated for this source category.

2.1.2 Comment: (IV-D-15, IV-D-16, IV-D-17, IV-D-26, IV-D-27, IV-D-35, IV-D-36, IV-D-40, IV-D-45, IV-D-46, IV-D-47, IV-D-49, IV-D-51)

Several commenters expressed concern over the following statement in the preamble to the proposed standards: "The 18 minerals covered by the proposed standards were selected on the basis of production tonnage rather than on the basis of any health or welfare considerations as compared to the other minerals." They believed this selection methodology violates the intent and scope of the Clean Air Act. Some believed the goal of the Clean Air Act to be improved air quality through reduction of total suspended particulates but felt that the EPA's approach leads to control of relatively small point sources of particulate emissions while missing major area sources. Others said EPA must base regulation of specific industries on health and welfare considerations rather than on size.

Response:

The statement the commenters quoted was an explanation of how EPA selected the particular 18 minerals to be covered by the NSPS from all the nonmetallic minerals that exist. The statement was not intended to provide any rationale for developing the NSPS for nonmetallic mineral processing plants.

The opening paragraph of the rationale section of the preamble to the proposed standards clearly states that nonmetallic mineral processing plants have been identified by EPA as sources of particulate matter emissions that cause or contribute significantly to air pollution that may reasonably be anticipated to endanger public health or welfare (48 FR 39567, August 31, 1983). NSPS source categories have been prioritized by the quantity of emissions, potential impact on health and welfare, and mobility and competitiveness of the industry as mandated in Section 111(f) of the Clean Air Act. Nonmetallic mineral industries emit significant quantities of particulate matter, a criteria pollutant for which an NAAQS was promulgated due to health and welfare concerns. The nonmetallic mineral industries source category was listed 13th on the EPA's list of 59 source categories (44 FR 49225, August 21, 1979) for which standards of performance must be promulgated.

For the purposes of standards development, EPA had to define which industries within the nonmetallic mineral industry source category would be regulated. Since similar grinding and crushing processes occur at most nonmetallic mineral industries, it is assumed that potential particulate emissions will be roughly proportional to production tonnage. Therefore, the largest sources of emissions will be controlled by regulating the industries which produce the largest volumes of nonmetallic minerals. Since the largest emissions reductions can be achieved by regulating the largest nonmetallic mineral industries, the 18 largest have been selected for inclusion in the NSPS. These 18 categories are based upon Bureau of Mines classifications and are the highest mined production segments of the nonmetallic mineral industry which have crushing and grinding operations, excluding coal, phosphate rock, and asbestos. Crushing and grinding of coal and phosphate rock are covered under new source performance standards for coal preparation plants and phosphate rock plants. Processing of asbestos is regulated under the national emission standard for hazardous air pollutants (NESHAP) developed for asbestos.

It has been estimated that by the fifth year after proposal of these standards, nonmetallic mineral processing plants in the 18 industries would cause annual particulate matter emissions to increase by 45,000 Mg (50,000 tons) per year if no standards were set. The standards are expected to reduce these emissions by 41,000 Mg (45,000 tons) per year. Since this magnitude of emissions reduction of a criteria pollutant can be achieved at a reasonable cost, EPA believes regulation of the 18 largest nonmetallic mineral industries is clearly authorized under Section 111 of the Clean Air Act.

2.1.3 Comment: (IV-D-19, IV-E-5)

One commenter requested that processors of refractory materials be exempted on the basis of the limited size of the industry, unique requirements of particle size, chemistry and introduction of temperature gradients throughout the process of manufacturing refractory materials.

Response:

The NSPS will affect only the processing of nonmetallic minerals, which are used as raw materials, at refractory producing plants. It will not affect the process by which finished refractory products are made unless these products fall under the definition of nonmetallic minerals in §60.671 of the regulation. The EPA believes that finished refractory products generally do not fall under this definition. "Nonmetallic minerals" are defined as any of the 18 minerals listed in §60.671 or a mixture which is over 50 percent nonmetallic mineral constituents. Generally, other materials are added to refractory products so they are less than 50 percent nonmetallic mineral constituents. The grinding and crushing of nonmetallic minerals in refractory manufacture are similar to these same processes in other affected industries. Control technology is the same for refractory producers as for other types of nonmetallic mineral industries, and economic analyses have shown that the impacts of applying this technology are reasonable. Therefore, refractory facilities which crush and grind nonmetallic minerals will not be exempt from the NSPS. Further details are given in Sections 2.5.10 and 2.10.6.

2.1.4 Comment: (IV-D-29)

One commenter requested that fluorspar processing plants be exempted because fluorspar is considered a strategic and critical commodity due to imports of the mineral being greater than 85 percent. In addition, he said, the domestic fluorspar industry is currently fighting for survival against imports and any increase in production costs may create a hardship on the domestic industry.

Response:

Fluorspar is a strategic and critical material as defined by the Strategic and Critical Materials Stock Piling Act. The purpose of this act is to "provide for the acquisition and retention of stocks of certain strategic and critical materials and to encourage the conservation and development of sources of such materials within the United States and thereby to decrease and to preclude, when possible, a dangerous and costly dependence of the United States upon foreign sources for supplies of such materials in times of national emergency," (Strategic and Critical Materials Stock Piling Act, 50 U.S.C. 98 et. seq.). The Act, however, places no direct restrictions upon either the domestic industries that produce strategic materials, or the government bodies that regulate those industries.

In fact many of the materials that are on the Federal Emergency Management Act's list of strategic minerals are also currently covered by NSPS or NESHAPs. These materials include: aluminum, lead, copper, zinc, beryllium, asbestos, and mercury.

The NSPS for nonmetallic minerals is not expected to have any significant effect upon either the level of imports of fluorspar or the cost to produce this mineral. The Background Document for the proposed standards (EPA-450/3-83-001a) shows that, in the worst case, NSPS costs will amount to no more than 0.3 percent of fluorspar industry revenues. Of the 23 minerals considered in the Background Document only three are estimated to have a lower percentage of cost to revenues.

Consequently, the Agency does not believe including fluorspar processing plants in the NSPS will create a hardship for the fluorspar industry.

2.1.5 Comment: (IV-D-34, IV-E-4)

One commenter requested that the brick manufacturing industry be exempted because no plants in the industry were examined or considered by EPA. In addition, no source or emission tests were conducted at any brick plant. He felt that EPA should separately assess the brick industry to determine whether brick plants pose environmental problems, whether any significant benefits can be gained from an NSPS, and the economic costs of installing and operating such controls.

Response:

Nonmetallic minerals processing at brick plants will not be exempt from the standards. The NSPS for nonmetallic mineral processing plants is applicable to only a portion of the total brick making process. In general, this process can be distinguished by several stages including: clay preparation (mining, transportation, and storage), mixing, deaerating, extruding, cutting, glazing, stacking, drying, firing, packaging, and storage and shipment. The NSPS will apply only to the clay preparation stage, which is virtually identical to the mining and processing of the other minerals covered by the standard. The EPA has tested similar processes at other nonmetallic mineral processing plants which cover the range of processes and operating conditions found in the clay preparation segment of brick manufacturing. Based on these tests, BDT has been established for nonmetallic mineral industries (including the brick industry), and analyses have shown that significant reductions in emissions can be achieved for reasonable costs by promulgating an NSPS.

In response to the comment, EPA met with representatives of the Brick Institute of America and visited brick plants. The meeting summary and trip reports have been placed in the docket. The EPA found no significant differences between clay preparation at brick plants and operations at other nonmetallic mineral processing plants with regard to equipment or control technology. Just as other nonmetallic mineral industries, brick manufacturing plants have a potential for particulate emissions. Crushing and grinding operations at brick plants are typically housed in buildings with partially open sides. In general, the crushing and grinding operations appeared to be well controlled. Although visible particulate emissions were observed from hammermills, conveying, and screening operations, these emissions generally do not exit from the buildings. However at one plant, visible emissions from a hammermill were observed escaping from the sides of a building. Since raw materials processing operations at brick plants are similar to those at other nonmetallic mineral processing plants, and since there are some brick plants where visible emissions from crushing and grinding facilities escape from buildings, EPA has determined that brick plants should be regulated under the standards. However, because most affected facilities at brick plants are enclosed in buildings, provisions have been added to the final standards clarifying the application of stack and visible emissions standards to buildings enclosing affected facilities (see Section 2.4.1).

2.1.6 Comment: (IV-D-8)

One commenter felt that there already are too many organizations regulating crushing plants and there is no need for any more regulations.

Response:

The commenter did not specify which regulations he was referring to. Crushing plants are subject to State, local, and PSD regulations, however, such regulations do not take the place of an NSPS. Under Section 111 of the Clean Air Act, the main purpose of standards of performance is to require new sources, wherever located, to reduce emissions to the level achievable by the best technological system of continuous emission reduction considering the cost and any nonair quality health, environmental, or energy impacts. The nonmetallic mineral industries were included on the 1979 priority list of source categories based on the determination that they cause or contribute significantly to air pollution which may reasonably be expected to endanger public health or welfare (44 FR 49225, August 21, 1979). Under Section 111(f) of the Clean Air Act, EPA is required to promulgate NSPS for all source categories included on this list. The EPA's analyses have shown that typical State regulations for crushing plants do not require BDT. Significant emissions reductions (41,000 Mg/yr or 45,000 tons/yr beyond what is required by State regulations) may be achieved at a reasonable cost under the proposed NSPS (48 FR 39566, August 31, 1983; EPA-450/3-83-001a). Therefore, an NSPS is being promulgated which will regulate crushing plants in nonmetallic mineral industries.

Standards of performance required by Section 111 play a unique role under the Clean Air Act. The main purpose of standards of performance is to require new sources, wherever located, to reduce emissions to the level achievable by the best technological system of continuous emission reduction considering the cost of achieving such emission reduction, any nonair quality health and environmental impacts, and energy requirements [Section 111(a)(1)]. Congress recognized that establishing such standards would minimize increases in air pollution from new sources, thereby improving air quality as the nation's industrial base is replaced over the long-term. Standards of performance thereby serve as a distinct means of achieving the Act's goals, supplementing the role played by RACT-based requirements for existing and new sources within state implementation plans developed for the purpose of attaining the NAAQS.

Congress also intended NSPS to play an integral role in the new source review programs of the Act. Standards of performance required by Section 111 also serve as the minimum level of emission control for BACT and LAER, which are determined case-by-case. Promulgation of these standards therefore assures that BACT and LAER for individual sources are not less stringent than the "best demonstrated technology" (BDT) for the class of sources into which those individual sources fall. Absent identification of BDT through promulgation of NSPS, BACT and LAER might be less stringent than BDT-level control.

Standards of performance have other benefits in addition to achieving emissions reductions. Standards of performance establish a degree of national uniformity to air pollution standards and, therefore, preclude situations in which some States may attract new industries as a result of having relaxed standards relative to other States. Further, standards of performance provide documentation that reduces uncertainty in evaluations of available control technology. This documentation includes identification and comprehensive analyses of alternative emission control technologies, development of associated costs, evaluation and verification of applicable emission test methods, and identification of specific emission limits achievable with alternate technologies. This documentation also provides an economic analysis that reveals the affordability of controls in a study of the economic impact of controls on an industry.

2.1.7 Comment: (IV-D-12, IV-D-15, IV-D-16, IV-D-17, IV-D-26, IV-D-31, IV-D-35, IV-D-36)

Eight commenters felt that the uncontrolled emission rates presented in the BID were too high for the sand and gravel industry. They felt that revising the current AP-42 emission factors for nonmetallic mineral industries is necessary to accurately judge their contribution to air pollution. They stated that only in rare instances are secondary and tertiary crushing part of sand and gravel processing. In addition to the limited amount of crushing, sand and gravel is often processed wet and, in those instances, negligible emissions are generated. Therefore, they felt if accurate emission rates were used, sand and gravel plants would not be on the NSPS priority list. One commenter also stated that without accurate emission factors it is impossible to make sound and defensible projections regarding cost and benefit, or the cost efficiency of control strategies.

Response:

Uncontrolled emission rates presented in the Background Document for the proposed standards are uncertain and may be imprecise, as was noted in the document (EPA-450/3-83-001a); however, the uncontrolled emission factors were not used in the decision to regulate the nonmetallic mineral industry. Rather, emission levels in the absence of an NSPS and the potential impacts of a standard were calculated assuming emissions are currently controlled to the level required by typical State Implementation Plan (SIP) regulations.

The EPA recognizes that a wide variety in emission rates exists both between industries and within any one industry. Emissions are related to the amount of processing done and are also affected by whether the processing is wet. The sand and gravel industry was put on the list of industries to be regulated because of its potential to emit particulate matter. Where wet processing is used, plants could probably meet the standards without additional control equipment.

Accurate uncontrolled emission factors are not necessary to project costs and benefits of the standards, since uncontrolled emission factors were not used in these projections. Baseline emissions (or the emissions which would occur if standards were not proposed) were calculated by assuming plants would control to the level required by SIPs. Typical State process weight regulations (pounds emitted per ton processed) for typical size plants in each industry were multiplied by the additional processing capacity expected to be built in each industry over the 5-year period of analysis. This resulted in an estimate of emissions for all 18 industries in the absence of an NSPS. The same procedure was used to calculate emissions under the proposed NSPS, except that a gas volume was assigned for the specified plant size and the value 0.05 g/dscm (0.02 gr/dscf) was used to calculate the emission level in terms of process weight rate. The tons of emissions reduction is the difference between allowable emissions due to State regulations (baseline) and the proposed NSPS for new capacity additions.

Costs of the NSPS are based on installing baghouses to control all additional processing capacity added during the 5-year period of analysis. Baghouses are the more expensive technology which could be used to meet the standards. Since it is likely that some new plants will use wet suppression instead of baghouses to meet the standards and that some new plants may install baghouses anyway due to State regulations, the costs of the proposed NSPS have been overestimated. Therefore, the EPA's current estimates of the costs and cost effectiveness of the proposed standards are probably high.

2.1.8 Comment: (IV-D-18)

One commenter requested that the sodium carbonate industry be excluded from the proposed standards. They felt this action would be consistent with the fact that EPA withdrew previously proposed standards for this industry because they were deemed unnecessary.

Response:

The sodium carbonate industry will be regulated under the standards for nonmetallic mineral processing plants. Crushing operations at sodium carbonate plants are similar to those at other nonmetallic mineral plants; and the sodium carbonate industry is capable of meeting the standards. In fact, new sodium carbonate plants or capacity expansions are already required by the SIP in Wyoming, where most facilities are located, to meet emission limits as stringent as those promulgated for nonmetallic mineral processing plants; so these standards will not be burdensome to the industry. However, because some new plants may be built in states other than Wyoming, which may not require the same level of control, the sodium carbonate industry will be covered under this NSPS. One purpose of NSPS is to ensure that all new plants, wherever located, reduce emissions to the level achievable by use of BDT.

The generic standards for the nonmetallic mineral source category has been promulgated for reasons explained in Section 2.1.1. The purpose of NSPS is to require new sources to reduce emissions to the levels achievable by the best technological system of emission reduction considering costs and any nonair quality health, environmental, and energy impacts. It has been determined that significant emissions reductions will result from the application of BDT to affected facilities at nonmetallic mineral processing plants, and that the costs and economic impacts are reasonable. The economic analyses for the standards included an analysis of the costs of control and economic impacts on the sodium carbonate industry. Even under the assumption that all control costs were attributable to the NSPS rather than SIPs, the costs of control were determined to be reasonable. The processing of sodium compounds, including sodium carbonate, has been included under the generic standards because it is one of the 18 highest mined production segments in the industry (see Section 2.1.2). No reason has been found to exclude sodium carbonate processing from the standards.

2.2 SELECTION OF EMISSION SOURCES FOR CONTROL

2.2.1 Comment: (IV-D-13, IV-D-30, IV-D-37, IV-D-39, IV-D-42)

Five commenters were concerned that the most significant sources of particulate matter at nonmetallic mineral processing plants were not considered for regulation. They felt that haul roads, stockpiles, truck dumping, drilling, blasting, open loadouts, overburden and product removal, loading at the mine and open conveying are more significant sources than the processing plant equipment. Several commenters pointed out that there are effective control techniques for these sources. One commenter felt the regulation addresses approximately 10 percent of the fugitive emissions at a processing plant. Another commenter stated that his company had never had a complaint about the emissions from the sources covered by the regulation but had received complaints about emissions from their haul roads and drilling and blasting.

Response:

The EPA has determined that the sources included in the proposed regulation are significant sources of particulate matter emissions. Emissions reductions of 41,000 Mg (45,000 tons) per year could be achieved at a reasonable cost under the proposed regulation. Sources covered by the standards include crushers, grinding mills, screening operations, bucket elevators, belt conveyers, bagging operations, storage bins, and enclosed truck and railcar loading. BDT has been determined for these sources and will be required under the proposed NSPS.

Other fugitive sources will be considered in the future for potential standards development. The timing will depend on budget constraints and the EPA's priorities. The EPA's Office of Research and Development is researching control techniques for several of the sources mentioned by the commenters including haul roads, stockpiles, drilling, blasting, loading at the mine, and conveying (other than transfer points). Preliminary information on control techniques for these operations is included in the document "Air Pollution Control Techniques for Nonmetallic Minerals Industry" (EPA-450/3-82-014).

2.2.2 Comment: (IV-D-13)

One commenter felt it was inconsistent that the standards exempted the dumping of materials from a truck into a screening hopper or crusher but included dumping the same materials into the same hopper with loaders, skip hoists or conveyor belts.

Response:

The EPA agrees that the reasons truck dumping was excluded would also apply to dumping from other types of vehicles. Therefore, to remedy this inconsistency, a broad definition of truck dumping has been added to Section 60.671 of the regulation. Under the new definition, truck dumping includes dumping from other types of movable vehicles including front end loaders and skip hoists. Thus, dumping of materials from these vehicles into screens, feed hoppers, or crushers is exempt from compliance with the emission limits. Dumping of materials from conveyor belts will, however, be subject to the emission limits. BDT has been established for conveyor transfer points, and conveyor transfer points must comply with the emission limits as stated in the regulation.

2.2.3 Comment: (IV-D-52)

One commenter requested clarification as to whether the proposed standards apply to crushers and grinders which are used in combination with dryers which are operated by combustion or other means.

Response:

The standards of performance for nonmetallic mineral processing plants will cover combined crushing or grinding and drying systems. These types of equipment fall within the definitions of "crushers" and "grinding mills" given in the proposed and promulgated regulations. Dryers which are not combined with crushers or grinders will be considered for coverage under separate calciner/dryer standards currently being developed by EPA.

2.3 SELECTION OF AFFECTED FACILITY AND RECONSTRUCTION PROVISIONS

2.3.1 Comment: (IV-D-4, IV-D-5, IV-D-7, IV-D-11, IV-D-12, IV-D-15, IV-D-16, IV-D-17, IV-D-24, IV-D-26, IV-D-28, IV-D-34, IV-D-35, IV-D-44, IV-E-4, IV-E-5)

Fourteen commenters objected to the designation of each piece of equipment at a processing plant as an affected facility. They believed that the entire plant should be designated as the affected facility. The commenters stated that control systems are designed for the entire processing plant, not for each piece of equipment. Therefore, retrofitting individual pieces of equipment at existing plants could entail either replacing existing multiple facility control technology completely or installing a separate control device for each piece of equipment as it is replaced. The former would mean the entire plant including existing facilities, would be meeting the standards and the latter would lead to an inefficient control technology design with each piece having its own control device. The commenters believe that it was not the EPA's intent to have either situation occur. The commenters also stated that nonmetallic mineral processing plants are not similar to other manufacturing operations regulated under Section 111 because they are designed as an integrated unit. They pointed out that a broken crusher, screen, or conveyer belt can render an entire production plant inoperative. They recommended that the entire plant be designated as the affected facility. One commenter felt that since crushers, grinding mills, screening operations, bucket elevators, belt conveyors, and storage bins are part of an integral unit, they should be considered an affected facility. He felt that since bagging operations and truck and railcar loading stations can operate independently of the rest of the plant, they could be considered separate affected facilities. Five commenters believed that Congress intended to protect and enhance air quality by controlling new plants as they are built and old plants when they are substantially rebuilt. They felt that designating the entire plant as the affected facility is more consistent with this intent. The commenters felt that specific pieces of equipment within a plant that are replaced without causing any increase in emissions should not be subject to the NSPS if such replacements fall under the 50 percent fixed capital cost threshold as outlined in the reconstruction provisions.

One commenter suggested another alternative would be that the EPA provide a waiver for plants that can show technical and cost reasons for designating the entire plant as the affected facility. He also believed that even under a recent court decision, a broad definition of affected facility is allowable in attainment areas.

One commenter (IV-D-39) asked that replacement of worn-out equipment with a new piece of equipment of the same type and with the same capacity be exempt from coverage. The commenter called this type of replacement common. Another commenter (IV-D-5) requested clarification on whether total replacement of an individual piece of equipment is exempt from the NSPS. Another commenter (IV-D-26) stated that these replacements were made on a regular and relatively routine basis.

Response:

It is the EPA's interpretation that these comments fall essentially into two subject areas: (1) Should the affected facility be defined more broadly than proposed (i.e., the whole plant instead of each piece of equipment)? (2) Is it reasonable to subject owners or operators to the standards if they are replacing an existing piece of equipment with another piece of equipment of equal or smaller size? The recent court decision referred to by the commenter did not relate to the NSPS program or discuss the NSPS program, and therefore, has no bearing on the definition of affected facility. In summary, EPA has concluded that the narrow definition should be retained. However, the Agency agrees that the replacement of an existing piece of equipment with another piece of equipment of equal or smaller size should be excluded from coverage in this case due to special characteristics of this source category. The rationale for these conclusions is discussed in the remaining paragraphs of this response.

Broad versus narrow definition of affected facility -- In accordance with its congressional mandate to set performance standards based on best systems of continuous emission reduction considering cost, EPA reviewed all operations associated with the mining and processing of nonmetallic minerals for possible coverage by the NSPS. Those facilities now listed as affected and covered by the NSPS represent those for which EPA has adequately demonstrated control techniques, which can be applied at reasonable cost.

As discussed in the proposal preamble, the choice of the affected facility is based on the Agency's interpretation of Section 111 of the Act and judicial construction of its meaning. [The most important case is ASARCO, Inc. v. EPA, 578 F.2d 319 (D.C. Cir. 1978)]. Under Section 111, the NSPS must apply to "new sources;" "source" is defined as any building, structure, facility, or installation which emits or may emit any air pollutant" [Section 111(a)(3)]. Most industrial plants, however, consist of numerous pieces or groups of equipment that emit air pollutants and that might be viewed as "sources." The EPA, therefore, uses the term "affected facility" to designate the equipment, within a particular kind of plant, which is chosen as the "source" covered by a given standard.

Since the purpose of Section 111 is to minimize emissions by application of the best demonstrated control technology (considering cost, health and environmental effects, and energy requirements) at all new, modified, and reconstructed sources, there is a presumption that a narrower designation of the affected facility is proper. In order to promulgate the broader designation, EPA would have to find that it would achieve greater total emission reductions or equivalent total reductions with significant other benefits such as reduced costs, energy consumption or other environmental impacts. In determining the appropriate designation of affected facilities for this NSPS, EPA considered the cost, environmental, energy, and economic impacts associated with the narrow designation as it was proposed (i.e., each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station) and determined them to be reasonable. For all new processing plants expected to be constructed in the first 5 years after proposal of the NSPS, cost and economic impact analyses were prepared which analyzed the NSPS impacts on the economic feasibility of new plants. Where the analysis showed that the cost of control equipment had unreasonable impacts on the economic feasibility of a particular size of new plant, an exemption from compliance with this NSPS was given (e.g., 25 ton per hour stationary crushed stone plants, See §60.670).

For existing facilities within the nonmetallic mineral industry, the EPA's information about the industry indicated that there would be few modifications and reconstructions. Modifications were not expected to occur because of the industry's operating characteristics. For example, changes to the equipment are not typically made for processing different types of raw materials because the equipment is designed to process different materials and changing raw materials would, therefore, not constitute a modification [40 CFR 60.14(e)(4)]. In fact, the only plausible case the Agency found in which emissions would be increased from an existing facility was the case of increasing operating hours, a case which is specifically exempt from coverage through modification provisions if it is accomplished without a capital expenditure [40 CFR 60.14(e)(3)].

Similarly, reconstruction in its usual sense was not expected to occur frequently. While parts of affected facilities (narrow definition) are replaced, these replacements are regular, routine maintenance activities, such as replacement of ore contact surfaces and other nondepreciable items. These routine replacements are performed to keep existing equipment operational. Because of these maintenance activities, the equipment has a long operational life and neither reconstructions nor replacements are expected to be frequent. Based on information available to the Agency, the EPA's judgment is that total replacements, if they occurred, would most likely consist of replacing existing equipment with larger capacity equipment for purposes of increasing production capacity or changing product specifications.

After considering processes using existing equipment and additions and changes which might be made to them, EPA concluded that the most likely change to occur would be the addition of completely new production lines of equipment with equipment designed for increased production or changes in product specifications. Based on the cost and economic impact analyses prepared, EPA concluded that it was economically reasonable to control new production lines.

Expansions of plant capacity typically occur with the addition of a new crushing or grinding line, which may include one or more of each of the facilities listed above. With the entire plant designated as the affected facility (broader designation), the addition of a new crushing or grinding line would cause the entire plant to be covered by the standards. This could cause significant cost, economic and energy impacts because of retrofitting control equipment on the existing pieces of equipment. Under the narrow designation of affected facility, the standards would cover only the new equipment used to expand the plant. Because the economic impact analysis showed it was reasonable to control the new equipment and because of the potential for unreasonable impacts associated with the broader designation, it was concluded that the narrow designation of affected facility was appropriate and reasonable.

Replacement of equipment with similar equipment of equal or smaller size -- Contrary to the information developed by EPA, representatives of several major trade groups representing the Associated General Contractors of America, The Colorado Rock Products Association, The National Crushed Stone Association, The National Industrial Sand Association, The National Lime Association, The National Limestone Institute, The North Carolina Aggregates Association, The Ohio Aggregate Association, The Southern California Rock Products Association and the Brick Institute of America, and The Refractories Institute have commented that replacements of equipment with new equipment of the same size do occur. In fact, The National Crushed Stone Association said that replacements, including replacements of existing pieces of equipment with similar pieces of equipment of equal size occur on a regular and relatively routine basis.

These comments are inconsistent with the other information the EPA gathered in support of the standards. Because the Agency's information indicated that such replacements are not likely, the impacts of replacement of equipment with new equipment of the same or smaller size were not fully analyzed. However, it is true that control technology will normally be designed for an entire plant. And, if such replacements are frequent, costs and economic impacts, because of the additional costs associated with retrofitting, could be unreasonable.

The EPA requested specific data on the frequency of replacement of equipment with equipment of the same or smaller size from these industry representatives but received nothing more definitive. However, the nature of this industry may make this type of information difficult to obtain. There are over 10,000 existing sand and gravel and crushed stone plants in the U.S. Because there are so many producers, so widely dispersed, it is difficult for either the industry or EPA to gather comprehensive information needed to fully quantify the equipment replacement practices at all of these plants. However, EPA agrees that the replacement practices cited by the industry are certainly possible. The EPA's analyses show that control of an entire new production line is reasonable, but to the extent that replacement of individual facilities within a production line does occur where controls are in place, separate control of each individual piece of equipment may impose unreasonable costs.

Therefore, to resolve this issue, EPA has included an exemption from compliance with the particulate emission limits of the standards for replacement of existing equipment with similar equipment of equal or smaller size. However, if every facility in a production line is replaced with a new facility, all new facilities will have to comply with the stack and fugitive emission limits contained in Section 60.672 of the regulation. If all facilities in a production line are replaced over a period of time, every facility will become subject to the emission limits at the time the last of the existing facilities in the line is replaced with a new facility. All facilities in the production line would be affected regardless of the time period over which the replacements were made. A production line is defined as all affected facilities (crushers, grinding mills, screening operations, bucket elevators, belt conveyors, bagging operations, storage bins, and enclosed truck and railcar loading stations) that are connected either directly or by a conveying system.

Although industry commenters have said that such replacement is common, EPA has no data that would indicate that it is a widespread practice. Moreover, the EPA's growth and environmental impact projections were not based on such replacements. Therefore, EPA expects no significant impact on emission reductions which could be achieved under the standards. The EPA will, however, reassess this exemption in 4 years during the review of the standards. Recordkeeping provisions have been added to the final standards to allow the Agency to obtain statistics on the number and type of replacements which occur. Then, during the review, EPA will reconsider the need for this exemption and, if appropriate, analyze the cost, economic, energy, and environmental impacts associated with regulation of emissions in cases where equipment is replaced with similar equipment of equal or smaller size.

2.3.2 Comment: (IV-D-5)

One commenter questioned whether the proposed designation of affected facility is consistent with the definition of source that is found in the Clean Air Act. He felt that an individual piece of equipment is not a building, a structure, a facility, or an installation.

Response:

As summarized in Section 2.3.1, EPA believes the definition of each piece of equipment as the affected facility is consistent with Section 111 of the Clean Air Act and its interpretation in court cases such as ASARCO, Inc. v. EPA (578 f.2d 319).

2.3.3 Comment: (IV-D-15, IV-D-16, IV-D-17, IV-D-26, IV-D-31, IV-D-32, IV-D-35)

Six commenters believe that the current designation of affected facility is appropriate for two industries, industrial sand processing and fuller's earth processing.

Response:

The EPA concurs with these commenters that the proposed definition of affected facility is appropriate for these industries. As detailed in Section 2.3.1, EPA believes the proposed narrow definition is also appropriate for other nonmetallic mineral industries.

2.3.4 Comment: (IV-D-5, IV-D-11, IV-D-24, IV-D-28)

Several commenters complained that the proposed affected facility designation would cause permitting costs to be dramatically increased because a permit would be required for each piece of equipment instead of one permit for the entire plant. In addition, they said, the paperwork requirements would be substantially higher than if the entire plant were designated the affected facility. One commenter (IV-D-24) stated the current designation would require Federal, State and local agencies to track, or keep a record of, all elements of each processing plant manufactured after August 31, 1983. He said such tracking would require diverting field enforcement resources to essentially administrative duties, thus substantially reducing inspection activities.

Response:

The EPA has checked with State agencies in every State the commenters were concerned about and found that, in all cases, only one permit would be required for air emissions from a new plant. This one permit could cover as many affected facilities as there are at the plant. Other NSPS with narrow definitions of affected facility have been promulgated, and no problems have been reported concerning multiple permits being required because of this definition. Therefore, EPA finds that permitting costs will not increase and paperwork will be reasonable.

The EPA or State agencies administering the standards would have to track, or keep records of, new equipment at both new plants and capacity expansions at existing plants under either a narrow or broad definition of affected facility. Because of reconstruction provisions, they would also have to track the installation of new equipment at existing plants under the broad or narrow definition of affected facility. When plants replace existing facilities with new facilities of equal or smaller size, as provided for in §§60.670 and 60.676, the owner or operator will be required to notify the States and the EPA's Office of Air Quality Planning and Standards, but they will not have to comply with the NSPS emission limits. Administrative reporting and recordkeeping requirements for these standards are similar to those for other NSPS. The EPA has estimated the administrative recordkeeping burden, and it has been determined to be reasonable.

2.3.5 Comment: (IV-D-34)

One commenter stated that at brick plants the processing equipment is normally enclosed in a building. Under the current designation of affected facility, emissions would be limited from each piece of equipment without any consideration as to whether the emissions were leaving the building. Therefore, he said, EPA would be regulating the air in the workplace as opposed to the ambient air.

Response:

It was not the EPA's intent to regulate workplace air. The intent of Section 111 of the Clean Air Act is to limit emissions to ambient air. The EPA has added provisions to the promulgated standards addressing the enclosure of affected facilities in buildings. As described in Section 2.4.1, emissions tests may be conducted outside such a building. If there are no visible fugitive emissions and the exhaust vent from the building (if there is one) meets the stack standards of 0.05 g/dscm (0.02 gr/dscf) and 7 percent opacity, then the affected facilities inside are in compliance. Only if these limits are exceeded, must one take opacity measurements inside the building to determine which individual facilities are in compliance. If the above emission limits are met, then the emissions control is equivalent to that achieved by using BDT.

2.3.6 Comment: (IV-D-13, IV-D-25, IV-D-41)

Several commenters requested that additional items be included in the list of components that are replaced regularly as part of routine repair and maintenance. One commenter suggested that conveyor idlers, shafts, pulleys, gears and bucket elevator chains be added to the list. Another commenter suggested that electrical drive components such as motors, bearings, and speed reducers be added and considered as routine repair and maintenance.

Response:

Most of the items the commenters list are "nondepreciable" components. Replacement of all nondepreciable components is already excluded from calculation of fixed capital costs of new components and will not trigger reconstruction provisions as explained in the preamble to the proposed regulation (48 FR 39574). The EPA cannot provide an exhaustive, all-inclusive list of frequently replaced components in the standards. Therefore, plants should be aware that replacement of any nondepreciable component will be excluded from reconstruction provisions. Depreciable items, other than ore contact surfaces (which are frequently replaced), will not be exempt from reconstruction provisions.

2.3.7 Comment: (IV-D-19, IV-D-25)

Two commenters suggested that changes be made to what is allowable or exempt from reconstruction provisions. One commenter requested that preventive maintenance and emergency repairs to existing facilities be exempted. Another commenter requested that all expendable materials be exempted from the 2-year accumulation requirement.

Response:

Routine maintenance as defined in the preamble for the proposed regulation will be exempted. This exemption includes nondepreciable components and routinely repaired ore-contact surfaces including crushing surfaces, screen meshes, bars, and plates, conveyer belts, and elevator buckets. All other depreciable repair and maintenance activities will be subject to the reconstruction and modification provisions.

Repairs to a facility that occur as a result of an unplanned emergency or catastrophic occurrence are not exempted from reconstruction considerations unless they are covered under the nondepreciable or ore contact surface exemptions. The reconstruction provisions apply in a straight forward manner to any existing facility undergoing substantial component replacement. As noted in the preamble to the regulation regarding reconstruction of existing facilities (40 FR 58417, December 16, 1975), the purpose of the reconstruction provisions is to "recognize that replacement of many of the components of a facility can be substantially equivalent to totally replacing it at the end of its useful life with a newly constructed affected facility." By requiring this type of essentially new facility to comply with NSPS, the Agency furthers Congress' intent of ensuring that BDT is applied during the turnover of the nation's industrial base. Neither the language nor the purpose of either Section 60.15 nor the definition of "new source" in Section 111 supports an exemption based on the owner's reasons for replacing the facility component.

The second commenter gave the items listed in comment number 2.3.6 as examples of "expendable" materials he thought should be exempt from reconstruction provisions. The EPA assumes he meant that these items are "expensible", or could be expensed, and are not depreciable. As stated in the preamble, nondepreciable components are excluded from consideration in calculating component replacement costs (48 FR 39574, August 31, 1983). Therefore, replacing such items would not cause an affected facility to be subject to reconstruction provisions.

2.3.8 Comment: (IV-D-15, IV-D-16, IV-D-17, IV-D-26, IV-D-35)

Five commenters requested clarification on what is considered the beginning of the 2-year period related to the reconstruction provisions. As they interpret it, a continuous program of component replacement is one that is proposed or initiated within a 2-year period. Another commenter requested clarification on whether the replacement of an affected facility is exempted if it does not increase emissions or does not cost over 50 percent of the cost of a new plant.

Response:

A 2-year period begins each time the owner or operator commences a reconstruction. "Commenced" is defined in the General Provisions (40 CFR 60.2) as meaning that an owner or operator has undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake or complete, within a reasonable time, a continuous program of construction or modification.

There is not a single 2-year period that begins on any specified date. Rather, EPA will aggregate any continuous programs of component replacement that begin within any 2-year period in determining whether "[t]he fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility . . . "[40 CFR 60.15(b)(1)] (the "50 percent test.") For example, suppose that an owner or operator of an existing facility begins program A of component replacement in month 1, program B in month 40, program C in month 60, and program D in month 80, and that programs B and C, considered together, meet the 50 percent test in 40 CFR 60.15(b)(1). Since programs B and C commenced within a 2-year period (20 months apart), the 50 percent test would be satisfied (regardless of programs A and D, and regardless of when programs B and C are finished.)

The affected facility for the purpose of determining the 50 percent reconstruction threshold is the individual piece of equipment (e.g., crusher, grinding mill, etc.) as defined in 40 CFR §60.670 and §60.671, not the entire plant. However, replacement of an existing affected facility with a new facility of equal or smaller size as described in §60.670(d) is exempt from compliance with emission limits, but is subject to the reporting and recordkeeping requirements in §60.676.

2.3.9 Comment: (IV-D-23)

One commenter objected to the special definition of reconstruction in the proposed standards. He was concerned that the exclusion of the replacement of ore-contact surfaces will lessen the likelihood that plants or facilities will become subject to the standards due to reconstruction. He suggested that the definition of reconstruction in Subpart A be retained as the basis for reconstruction determinations.

Response:

Under the reconstruction provisions, applicable to all standards of performance, an existing facility might become subject to the standards if the components were replaced to such an extent that the fixed capital cost of new components exceeded 50 percent of the fixed capital cost required to construct a comparable new facility.

As noted in the preamble to the proposed regulation regarding reconstruction of existing facilities, (40 FR 58417, December 16, 1975), the purpose of the reconstruction provisions is to "recognize that replacement of many of the components of a facility can be substantially equivalent to totally replacing it at the end of its useful life with a newly constructed affected facility." By requiring this type of essentially new facility to comply with NSPS, the Agency furthers Congress' intent of ensuring that best demonstrated control technology is applied during the turnover in the nation's industrial base. The reasoning underlying the reconstruction provisions may apply even when replacement of the components of a facility occurs over a relatively long period of time.

Section 60.15 defines the "fixed capital cost" of replacement components as the capital needed to provide all the "depreciable" components. By excluding nondepreciable components from consideration in calculating component replacement costs, this definition excludes many components that are replaced frequently to keep the plant in proper working order. There may, however, be some relatively minor depreciable components that are replaced frequently for similar purposes. For example, crusher jaws, spindle surfaces, and screen meshing are typically replaced on regular intervals ranging from 1 to 6 months, and may represent from 5 to 10 percent of the cost of new equipment. In the Agency's judgment, maintaining records of the repair or replacement of these items may constitute an unnecessary burden. Moreover, the Agency does not consider the replacement of these items an element of the turnover in the life of the facility which concerned Congress when it enacted Section 111. Therefore, in accordance with 40 CFR 60.15(g), the standards exempt certain frequently replaced components, whether depreciable or nondepreciable, from consideration in applying the reconstruction provisions to nonmetallic mineral processing plant facilities. The cost of these components will not be considered in calculating either the "fixed capital cost of the new components" or the "fixed capital costs that would be required to construct a comparable new facility" under §60.15.

In the Agency's judgment, these items are ore-contact surfaces on processing equipment, including crushing surfaces; screen meshes, bars, and plates; conveyer belts; and elevator buckets.

2.3.10 Comment: (IV-D-25)

One commenter requested that the proposed standards be revised to use the definition of capital expenditures in the accelerated cost recovery system program in IRC Section 263.

Response:

The commenter did not provide any additional details or clarification of his comment. The EPA assumes that he is referring to the fact that the General Provisions use the "annual asset guideline repair allowance percentage" in defining capital expenditure. The standards state that increases in production rate will not be considered modifications if they can be accomplished without a capital expenditure exceeding the product of the existing Internal Revenue Service (IRS) annual asset guideline repair allowance of 6.5 percent per year and the facility's basis (48 FR 39573, August 31, 1983). This annual repair allowance is part of the Asset Depreciation Range System (ADR) under the Internal Revenue Code. In 1981, the Accelerated Cost Recovery System (ACRS) was introduced as the method of calculating depreciation for assets placed in service after 1980. The ACRS does not include an allowable repair percentage.

The EPA believes it is reasonable to base the modification exemption on the 6.5 percent repair allowance. The annual asset guideline repair allowance percentage is still in effect for facilities existing prior to 1981, and it is included in IRS Publication 534 for 1983 tax returns.

The portion of the standards where the annual asset guideline repair allowance is used are the modification provisions, which state that facilities can make capital expenditures of up to the 6.5 percent repair allowance without becoming subject to the modification provisions. However, EPA believes few plant owners will need to calculate the repair percentage or will spend in excess of 6.5 percent, because the EPA has excluded the most likely types of repairs from the calculation of capital expenditures. As explained in the preamble to the proposed standards (48 FR 39573, August 31, 1983), facilities may spend unlimited amounts on routine maintenance, repair, and replacement, such as replacement of ore contact surfaces subject to high abrasion, without becoming subject to the modification provisions. Replacements of existing affected facilities with new facilities of equal or smaller size are also exempt from compliance with the emissions limits. Because of these provisions, it is unlikely existing facilities will be impacted by the EPA's use of the annual asset guideline repair allowance. The 6.5 percent repair allowance for these standards is, therefore, deemed reasonable.

2.4 EMISSION CONTROL TECHNOLOGY

2.4.1 Comment: (IV-D-13, IV-D-34, IV-D-41)

One commenter was concerned that no provision was made for enclosure of facilities that emit fugitive dust. The commenter said they had found that enclosure and shrouding are among the most cost-effective control measures available. Two commenters objected to the fact that the proposed standards do not allow for enclosing the affected facilities as a control option. They stated that the use of a building to house these sources is precluded by the affected facility designation. The commenters said the 1979 Background Information Document stated that observations could be made outside of a building to determine if facilities inside were in compliance, but that this language was excluded from the 1983 Background Information Document (EPA-450/3-83-001a). The commenters, therefore, believed the proposed standards would require observations to be taken at each piece of equipment inside a building, and that facilities might be held in violation even if emissions did not escape the building or affect the ambient air. They felt that measurements should be taken outside of the building.

Response:

The EPA met with one commenter in order to better understand this comment (Docket No. IV-E-4). The commenter brought photographs of one brick plant in which the crushing and grinding equipment appeared to be controlled very effectively with fabric filters. Both the process equipment and the control systems were located inside of buildings. Exhaust ducts from the control equipment exited through the buildings. However, fugitive emissions were not in evidence in the photos taken inside the buildings, nor were they seen exiting from the buildings. The EPA also visited three brick plants operated by two companies. The trip reports are in the docket. In general, emissions from crushing and grinding operations are well controlled. Although the sides of buildings housing these operations were open and conditions during the visits were windy, no visible emissions were observed exiting from the buildings at two of the three plants. At the third plant, visible emissions from a hammermill were observed escaping from one side of a building.

The EPA agrees with the commenters that in some cases the enclosure of affected facilities in buildings is equivalent to BDT, and that the intent of Section 111 is to limit emissions to the ambient air. For these reasons, the EPA has expanded Sections 60.672 and 60.675 of the promulgated standards to add emissions limits and methods of determining compliance which apply if affected facilities are enclosed by a building. Under the final standards, affected facilities inside an unvented building will be determined to be in compliance if there are no visible fugitive emissions from the building as determined by EPA Method 22. When conducting a performance test using EPA Method 22, the minimum total observation period for each building shall be 75 minutes, and each side of the building and the roof shall be observed for at least 15 minutes. Observation should be continuous, except that rest breaks should be taken as described in the method. If the building is vented and there are no visible fugitive emissions, and the emissions from the vent meet the stack particulate standards of 0.05 g/dscm and 7 percent opacity, then the affected facilities inside the building will be determined to be in compliance. A vent is defined as an opening through which there is mechanically induced airflow for the purpose of exhausting from a building air carrying particulate matter emissions from one or more affected facilities. If there are no fugitive emissions from the building and any vent from the building meets the emission limits, then the emissions control is equivalent to that achieved using BDT.

However, if emissions from the building exceed the "no visible emissions" fugitive standard or the stack standards, then ambient air quality is being affected. In such cases opacity must be measured at each affected facility inside the building, and the applicable standards (i.e. 15 percent fugitive opacity for crushers without capture systems and 10 percent opacity for all other facilities) must be met by each affected facility. These provisions allow buildings to be used as control devices and compliance measurements to be taken outside the building.

2.4.2 Comment: (IV-D-1)

One commenter was concerned because electrostatic precipitators (ESPs) were not mentioned as viable and demonstrated control devices for the non-metallic mineral processing industry.

Response:

ESPs were not mentioned as a demonstrated control technology because they are rarely used in the nonmetallic mineral processing industry and may not be applicable to the range of conditions found in the industry. However, the standards do not preclude the use of ESPs. If a plant met the stack emissions standards of 0.05 g/dscm (0.02 gr/dscf) and 7 percent opacity using an ESP, it would be in compliance with the standards.

2.4.3 Comment: (IV-D-18, IV-D-21, IV-D-22)

Three commenters stated that a baghouse is not a feasible control option for portable plants. They said that the standard portable equipment for a crushing plant is made up of several units, each of which in itself is portable. According to the commenters, to put a hood or some other unit on these is not a practical solution. They thought it unreasonable to dismantle and remove some type of hood every time the plant is moved.

Response:

The EPA conducted an economic analysis of the application of baghouses to portable plants. This is presented in Supplement A of the Background

Information Document for the proposed standards. Several sizes of model plants in the crushed stone and sand and gravel industries were evaluated. The average number of moves per year was estimated to be four if an entire plant moved from one quarry to another. If a plant moved within one quarry, it moved up to 24 times per year. This is believed to be a worst case estimate of the number of moves per year and would lead to overestimation of costs in most cases. Two control options were considered: one using a single baghouse to control several pieces of equipment at the plant, and the other assuming individual baghouses on each crusher and its associated screen as well as on the final screen. Costs of control were estimated using information from a variety of sources. Movement parameters and associated costs were also estimated and included in the economic analyses. Both installed capital cost and total annualized cost were developed for each model plant using each of the two control options.

A Discounted Cash Flow (DCF) analysis was used to further analyze economic impacts of NSPS on portable plants. The model was used to estimate the financial status or profitability of portable plant operations, both before and after the addition of NSPS controls. The costs of moving the plant and control devices were included in the analysis. The model was run under several different scenarios varying portable plant capacity, average hours of operation per year, and the level of mobility among and within quarries. The analysis is thought to be conservative. Assumptions as well as results are detailed in Section 2.5.4 of this chapter and in Supplement A of the Background Document for the proposed standards. It was found that baghouse control might be unreasonably costly for portable crushed stone plants and portable sand and gravel plants with capacities of 136 Mg/h (150 tons/h) or less. Therefore, they were exempted from the proposed NSPS. The EPA's analysis shows that larger portable plants can use baghouses and retain profitability.

2.4.4 Comment: (IV-D-15, IV-D-16, IV-D-17, IV-D-26, IV-D-35)

Five commenters objected to wording in the preamble to the proposed standards related to baghouses. The two statements they objected to are: (1) "In other instances, wet dust suppression may not provide the necessary control and baghouse controls would be needed", and (2) "The most efficient collection device used in the nonmetallic mineral industry is the fabric filter or baghouse." They felt that these statements contradict other statements in the preamble and the performance-oriented standards. One commenter was also concerned that wet scrubbers were not mentioned as best demonstrated technology (BDT).

Response:

The preamble statements are correct. Wet dust suppression cannot be used in all cases since moisture may interfere with certain processing steps. It also may not be possible in freezing weather or in arid regions. Wet suppression may be inadequate if the material processed contains a high percentage of fines (EPA-450/3-83-001a). For these reasons, some plants must use combination systems or dry collection followed by baghouses.

The collection efficiencies given in the preamble for the proposed standards (48 FR 39569, August 31, 1983) support the statement that fabric filters are the most efficient collection device used in the industry. Collection efficiencies of over 99 percent can be attained even for particles under 1 micron in diameter. The typical 6 inch pressure drop scrubbers used in the industry are less efficient, and even 15 inch pressure drop scrubbers achieve only 80 to 95 percent collection of submicron particles. Only high energy wet scrubbers, rarely used in the industry, with pressure drops of about 30 inches can achieve over 99 percent collection efficiency for particles 0.2 to 1.0 microns in diameter, and would be less efficient for smaller particles. Thus, fabric filters are the most efficient collection devices for small particulates.

Standards were set based on emissions achievable using fabric filters, however, if plants can meet the stack emissions standards of 0.05 g/dscm (0.02 gr/dscf) and 7 percent opacity, other technologies can be used. The best technology for every specific plant may not be a fabric filter. When operating conditions, plant configuration, and costs are considered, another technology may give comparable emissions reduction at a lower cost. In the case of scrubbers, the opacity standard does not have to be met. This provision was specifically included in both the proposed and final versions of the standards (48 FR 39573, August 31, 1983) because scrubbers are a demonstrated technology which can be used to achieve the specified outlet concentrations. But opacity has been shown not to be a reliable indicator of particulate emissions concentrations from wet scrubbers. The standards, therefore, allow a variety of technologies including scrubbers to be used, and as long as the standards are met, all are considered acceptable.

2.5 ECONOMIC IMPACT

2.5.1 Comment: (IV-D-3, IV-D-18, IV-D-24)

Several commenters questioned the EPA's conclusion that requiring baghouse control on portable plants is reasonable. They stated that each time a facility was relocated the operator would have to modify the control system. They did not believe the costs associated with this activity were included in the cost estimates.

Response:

The EPA modeled portable plants with two different plant configurations and two control options to account for variability in portable plants. The two types of configurations are straight-line and L-shaped. Control option 1 assumes one baghouse is used to control the entire portable plant if the plant's capacity is 270 Mg/h (300 tons/h) or less. For larger plants, it was assumed that the primary crusher would be ducted to one baghouse and all other pieces of equipment would be ducted to a second baghouse. Option 2 assumes the following sources are controlled by individual baghouses:

- primary crusher,
- secondary crusher and associated screen,
- tertiary crusher and associated screen, and
- final screen.

For both options, emissions from conveyer transfer points are hooded and ducted to the baghouse system.

Plants are assumed to move an average of 4 moves per year between quarries or 24 moves per year within a quarry. This is believed to be a worst case estimate of the number of moves per year and would lead to overestimation of control costs in most cases. It is believed the plant would usually be set up in a similar configuration in order to minimize moving and set-up costs and to avoid modification of process equipment. The costs of dismantling, moving, and reassembling the control system were estimated to be between $8,500 and $16,000 per move (EPA-450/3-83-001a). These costs were included in the Discounted Cash Flow (DCF) analysis used to predict the profitability of portable plants with and without an NSPS. These estimated costs of moving include costs of minor modifications in the duct work. Economic analysis was not performed for the specific case where a portable plant added new pieces of equipment. However, if an analysis of this situation were done, both processing capacity and control costs would be similar to those calculated for larger size model portable plants. The costs for moving portable plants have been included in the EPA's economic analyses; and it has been determined that the costs of controls required by the proposed standard are reasonable. (See Section 2.5.2 for details on the determination that costs are reasonable.)

2.5.2 Comment: (IV-D-3, IV-D-18)

One commenter stated that most operators in the industry would hardly consider costs such as $936,000 and $219,000 for baghouse control systems reasonable. Another commenter stated the costs as presented in the preamble do not make sense because a portable plant with 50 percent more capacity than a fixed plant could not have the same dust control for 25 percent of the cost.

Response:

The estimated cost of baghouse control for fixed plants with crushing operations ranges from $70,000 for a 9 Mg/h (10 tons/h) plant to $396,000 for a 544 Mg/h (600 ton/h) plant or from 12 to 9 percent, respectively, of the plants' total capital costs. There was a typographical error in the preamble to the proposed rule in the Federal Register (48 FR 39566, August 31, 1983), where the $396,000 cost for baghouse control was written as $936,000. The correct cost estimate is $396,000. For fixed plants with crushing and grinding operations estimated costs range from $109,000 for a 9 Mg/h (10 ton/h) plant to $219,000 for a 136 Mg/h (150 ton/h) plant, or from 16 to 6 percent, respectively, of the plants' total capital cost. The EPA's economic analyses concluded that for each mineral industry, the annualized control cost in the fifth year divided by annual output is less than 2 percent of the price of a ton of product. The discounted cash flow (DCF) analyses showed that most new plants would be able to operate profitably if they were required to install baghouses. Conservative assumptions were used in these analyses, and if plants chose to use wet suppression or scrubbers to meet the standards, costs would be lower. However, DCF analyses showed the cost of baghouses might prevent the construction of small plants in certain industries, so these types of plants were exempted from the regulation. Thus, the plants covered under the standards will not face unreasonable economic impacts if the standards are promulgated, and substantial emissions reductions can be achieved.

The commenters' concern about control costs for portable versus fixed plants was partly caused by the misprint on costs for fixed plants in the Federal Register (explained above). However, estimated control costs for portable plants are less than for fixed plants. One reason for the difference in control costs is that portable plants are typically more compact, so ducting is less expensive. Another factor is that portable plants generally have fewer steps and less equipment than typical fixed plants with the same processing capacity. Since there are fewer affected facilities at typical portable plants, control costs for the entire plant would be lower.

2.5.3 Comment: (IV-D-18)

The commenter suggested that all of the cost data be presented in current dollars because the higher costs may affect the economic analysis results.

Response:

When dollar amounts or cash flows for multiple years are compared, such dollars must be defined as either constant (real) or current (nominal) dollars. The difference is that constant dollars are adjusted to eliminate the effects of inflation, while no such adjustment is made for current dollars. For this reason current dollars are not directly comparable because they may embody various degrees of purchasing power. On the other hand, constant dollars are comparable because they are adjusted by an index that reflects the rate of inflation. Constant dollars are always expressed in terms of a single year's dollars. In the case of the economic analysis constant (1976) dollars were used in Chapter 8 of the Background Document for the proposed standards while constant (1979) dollars were used in the portable plant analysis contained in Supplement A.

The economic analysis has used a Discounted Cash Flow (DCF) methodology to estimate how the decision to construct new plants will be affected by the NSPS costs. Because the DCF analysis considers costs and revenues over the useful life of the new plant, the use of constant dollars provides a standard of reference for evaluating the real resource costs of the standard, as those costs are incurred at various points in the future. However, consistency is ensured because the analysis discounts future income streams by a real (i.e., inflation adjusted) interest rate. If current dollars had been used in the DCF analysis, a nominal interest rate, which includes inflation, would be more appropriate for discounting. However, in this case the evaluation of real resource costs over time would become more complicated because future control costs would be inflated by some assumptions regarding future rates of inflation. Such complications are typically avoided through the use of constant dollars in the economic analysis.

Finally, if the 1976 and 1979 constant dollars used in the analysis are updated to 1983 dollars, the conclusions presented in the economic analysis would still hold. This is true because between those years, prices for nonmetallic minerals and the costs to operate the NSPS control equipment have increased at a similar rate. Consequently, inflation has not altered the basic ratio of NSPS control costs to industry revenues over recent years (Docket No. IV-B-2).

2.5.4 Comment: (IV-D-18, IV-D-24)

The commenters questioned why EPA chose a cutoff size of 150 tons per hour for portable plants when the data presented in the BID indicates that plants with capacities of 150 tons per hour and 300 tons per hour could not operate in an economically feasible manner given baghouse control costs.

Response:

The EPA's Discounted Cash Flow (DCF) analysis indicates that for crushed stone and sand and gravel plants, controls required by the standards would make investment in portable plants of 150 tons/h economically infeasible, but for portable plants with 300 tons/h capacities the analysis does not indicate clear economic feasibility or infeasibility. In the DCF analysis, the feasibility of individual investments was judged by whether or not the internal rate of return is greater than the cost of equity (and thus economically feasible) or less than the cost of equity (and thus economically infeasible). For the stationary plant DCF analysis a cost of equity of 11.8 percent was assumed. For the portable plant DCF analysis a range from 12 to 15 percent was assumed for the cost of equity. However, in order to avoid the understatement of the adverse economic consequences that would affect the industry members, several "worst case" (i.e., from the industry point-of-view) assumptions have been made by the DCF analysis. Among the assumptions are: NSPS costs are calculated from an uncontrolled baseline [i.e., there are no State Implementation Plan (SIP) costs]; the plant is operated as a separate business entity; cost pass-through is limited by competition from existing plants in the same area; the plant will operate at most 1,600 hours per year (vs. 2,000 hours per year for a stationary plant); a small crane and flatbed truck will be needed to move the portable plant baghouse; and baghouses will be used as opposed to wet dust suppression systems which cost significantly less.

The cutoff point was set at 150 tons/h because the economic analysis shows that even if the worst case assumptions noted are relaxed, the economic viability of portable plants of this and smaller sizes remains in doubt. On the other hand, for plants larger than 150 tons/h, the benefits of "economies of scale" increase the profitability of these plants so that NSPS costs are significantly less burdensome. Finally, it should be noted that although the economic analysis questions the economic feasibility of the 300 ton per hour portable plant (Supplement A) with NSPS controls, it is highly unlikely that all worst case assumptions would hold true for such a plant. In reality, if only one or two of the worst case assumptions are relaxed the plant is shown to be economically feasible.

2.5.5 Comment: (IV-D-24)

One commenter suggested that portable plants in remote areas be exempted because they are generally smaller operations where water is unavailable and trucking of water or adding baghouses for control could be cost prohibitive.

Response:

The EPA's economic analyses show that baghouses are affordable for all portable plants except those specifically exempted. (Portable sand and gravel plants and crushed stone plants with capacities of 136 Mg/h (150 tons/h) or less are exempt from the standards.) Since baghouses are affordable, the affordability of other less costly technologies does not need to be analyzed; although, plants may use other technologies to meet the standards. The purpose of NSPS is to require new sources, wherever they are located, to reduce emissions to the level achievable by the best technological system of emissions reductions, considering cost, energy, and environmental impacts. Individual plants within a source category cannot be excluded on the basis of remoteness when economic analyses show their costs of control to be reasonable.

2.5.6 Comment: (IV-D-14, IV-D-16, IV-D-31, IV-D-32)

Several commenters felt that it was neither reasonable nor economical to require a performance test on a small baghouse. Three of them said it would cost more to test small baghouses than to buy them. They were concerned with the costs of manifolds, stacks, and test platforms which would be required for a test. Three commenters defined a small baghouse as one which has a maximum cloth area of 500 square feet. Another person suggested that the cutoff be 10,000 cfm. One commenter questioned why no mention was made of stack testing preparation costs and stack testing cost. They felt that these costs should be included in the cost and economic impact analyses.

Response:

Small baghouses will not be exempt from performance tests under the standards. Performance tests are necessary to ensure compliance with the standards and gain information for the 4-year NSPS review. The EPA has found that similar facilities with similar control devices may not have the same emissions characteristics due to variables in types of processes, process operating conditions, and control system operation. Because of this variability, performance tests are necessary to ensure compliance. Opacity is used as an indicator of performance, but does not allow the necessary precision of a stack test. Furthermore, testing assures the manufacture of quality baghouses. Without testing, price competition could promote the sale of inferior quality equipment.

The EPA has found the cost of performance testing to be reasonable. The agency has calculated that the costs of performance testing would amount to at most one third of the installed capital costs of a small baghouse. These costs are based on the smallest baghouse expected for the model plants described in the Background Document for the proposed standards. The cost of manifolds, stacks, and test platforms are relatively low if they are designed and incorporated into the baghouse control system when the system is purchased. There is a factor covering these items in the installed capital costs presented in the Background Document for the proposed standards. Furthermore, baghouses would have to be designed to allow testing even if they were exempt from the performance test requirement, because if a facility could not meet the opacity standard, a performance test would be required to determine compliance. Designing baghouses to allow testing would avoid the costs of retrofitting in this situation.

Other NSPS, such as the lead-acid battery manufacturing plants standards, require performance tests on baghouses at least as small as those considered under the nonmetallic mineral NSPS. The costs of testing have been determined to be reasonable in these cases.

2.5.7 Comment: (IV-D-7, IV-D-41)

One commenter stated that eventually all existing plants will fall under these standards and this will entail retrofitting all facilities with control systems. He was skeptical of the reasonableness of this situation and doubted that the $105,000 annualized cost for a 600 ton per hour plant would include the maintenance and increased labor associated with many of these systems. Another commenter did not believe that additional retrofitting costs such as additional structural steel for supporting bag collectors at roof top elevations or extensive duct lengths and configurations to reach control equipment which cannot be adjacent to the affected facility have been adequately addressed in the economic impact assessment.

Response:

Since replacement of existing affected facilities with new facilities of equal to smaller size and replacement of routinely replaced ore contact surfaces and nondepreciable components of affected facilities have been exempted from compliance with the emission limits in the regulation, EPA believes few, if any, existing plants will be affected by the modification and reconstruction provisions of the standards. Where retrofitting may be necessary, EPA does not believe it will entail costs high enough to affect the economic analysis results. Existing plants will be required to comply with the standards if new equipment is added. Capacity expansions at existing plants were modeled prior to proposal of the standards (EPA-450/3-83-001a). Discounted cash flow (DCF) analysis showed that control would be economically feasible in these situations.

2.5.8 Comment: (IV-D-12, IV-D-15, IV-D-16)

Three commenters questioned the industry growth rates discussed in the preamble. Specifically, they felt the growth estimates of up to 6 percent for the crushed stone and sand and gravel industry were too high. They claimed growth rate predictions made by the Bureau of Mines are approximately 1 percent for both industries through 1990. One commenter suggested that EPA withdraw the proposed standards and make new calculations based on realistic growth rates.

Response:

Table 8-42 of the Background Information Document for the proposed standards identifies a 4 percent annual rate of growth for crushed stone and a 1 percent annual rate of growth for sand and gravel. More recent estimates made by the Bureau of Mines suggest that annual growth rates for both industries should be about 1 percent up to 1990.

However, an assumed rate of growth for total output of an industry, cannot be translated directly into an estimate of the number of new plants that will be constructed. For example, the replacement of existing plants that have reached the end of their useful lives would require the construction of new plants even if total production is assumed to be constant, or even decline, over future years. Also, because of the local nature of the markets in question, growth in demand at the local level may prompt new plant construction regardless of future output at the national level.

Finally, the conclusions presented in the Background Document for the proposed standards regarding the economic feasibility of this NSPS would still hold, regardless of the assumed rate of industry growth. This is so because NSPS control costs and economic feasibility have been evaluated on an individual plant basis.

2.5.9 Comment: (IV-D-15, IV-D-16, IV-D-17, IV-D-26, IV-D-35)

Five commenters believed that the economic impact analysis should be updated at some future time to reflect more accurate cost effectiveness figures. However, they did not believe an updated analysis would change the determination of wet dust suppression as BDT.

Response:

The cost effectiveness calculated prior to the standards proposal is conservative. Emissions reductions were calculated assuming that in the absence of an NSPS, plants would have to control particulate emissions to meet typical State process weight regulations. Only reductions in emissions beyond the level required by SIPs were credited to the NSPS. However, costs were calculated assuming baghouses, an expensive technology, would be the control technique chosen by all affected facilities. Furthermore, it was assumed all costs of control were due to the NSPS (i.e., that plants incurred no costs in complying with SIPs). Therefore, costs are overestimated. Even with these conservative assumptions, cost effectiveness was determined to be reasonable. Updating the analysis could change the cost-effectiveness somewhat due to variation in current SIP control levels, but as the commenters noted, this would not change the determination that BDT is baghouses or wet suppression, the selection of emission limits based on BDT, or the economic analyses. (See Sections 2.5.3 and 2.5.16 for comments and responses on updating the economic analyses to current dollars.)

2.5.10 Comment: (IV-D-19)

One commenter suggested that the economic impact analysis is incomplete and fails to address the typical refractory producer. In particular, he believed the following items were not considered in the analysis: (1) additional energy costs due to the nature of the required processing in a refractory plant, i.e. additional baghouse heating costs, additional collector operation costs, etc.; (2) the impact of imports which have significantly increased in recent years; and (3) disposal costs of waste materials.

Response:

The EPA met with the commenter in order to better understand the concerns raised in item (1) (Docket No. IV-E-5). The commenter presented typical process flow diagrams for refractory manufacturing plants. Processes vary depending on plant size, type of raw materials, and type of product. Often some nonmetallic mineral raw materials are bought pre-ground to specification, while others are processed at the plant. Raw materials processing includes crushing, grinding, and drying. Emissions from dryers are generally in a temperature range of 100 to 180°F; and emissions from dryers are typically ducted and controlled separately from emissions from crushers, grinders, and other facilities affected by the nonmetallic mineral standards. However, some plants have combined air-swept dryers with grinding operations. These systems operate above ambient temperatures.

In response to the commenter's first concern, these standards are not expected to cover high temperature emission streams at refractory manufacturing plants. The standards will cover only affected facilities (crushers, screens, grinding mills, etc.) processing nonmetallic minerals as defined in §60.671 of the regulation, and these do not involve high temperature streams. "Nonmetallic minerals" are defined as any of the 18 minerals listed in §60.671 or a mixture the composition of which is over 50 percent nonmetallic minerals. The crushing and grinding operations at refractory plants which process nonmetallic mineral raw materials are similar to crushing and grinding operations at other types of nonmetallic mineral processing plants, and emissions are near ambient temperature. Air swept grinding mills, also referred to as combined drying and crushing systems or drying and grinding systems, where hot air is introduced to crushers or grinders in order to dry the material as it is crushed, are covered under the NSPS for nonmetallic mineral processing plants. However, these systems generally operate at temperatures of below 180°F and can be controlled by the type of baghouses costed in the Background Document for the proposed standards. The EPA tested combined grinding and drying systems at clay processing plants during standards development, and found that these facilities could meet the standards. The facilities referred to as L-1 and M-2 in the Background Document for the proposed standards are grinding mills operated at higher than ambient temperatures, and these met the standards using baghouse control. Grinding mills generally have higher emissions than crushers and emit a larger fraction of small particulates. If the tested grinding mill-dryer combinations can meet the standards, crusher-dryer combinations would also be able to meet the standards. Thus, the data base for the nonmetallic mineral standards adequately represents the characteristics of emissions from crushers and grinders used in combination with dryers, and the EPA's data show that the promulgated standards can be achieved by such facilities.

Calciners and dryers which are not operated in combination with crushers or grinders are not subject to these standards, although it should be noted that separate calciner/dryer standards are being developed by EPA. If there are dryers processing nonmetallic minerals at refractory manufacturing plants, they would not be subject to the nonmetallic mineral standards, unless emission streams from the dryers were ducted together with emission streams from affected facilities. The EPA's information is that high temperature emission sources are typically ducted separately from facilities affected by this NSPS. In the one case reported to EPA where a dryer and crusher were ducted together, the temperature of the emission stream was below 180°F (Docket No. II-D-75). A baghouse to control these facilities would not require special high temperature materials or design.

The EPA, therefore, believes the costs of controlling affected facilities at refractory manufacturing plants will be reasonable. First, as explained, high temperature emission streams at refractory manufacturing plants are not associated with nonmetallic mineral facilities, and, therefore, will not be covered. The cost and economic analyses in the Background Document for the proposed standards adequately consider the costs of control for emission streams with the temperatures and characteristics of those streams at refractory manufacturing plants which will be affected by the standards. Second, the standards are expected to affect new plants and new production lines added to existing plants. Since replacement of existing equipment with new equipment of the same or smaller size is exempt from compliance with the emission limits, existing plants will not be affected by the standards unless they expand their capacity. When affected nonmetallic mineral facilities are part of a new plant or capacity expansion, these can be designed with ducts which are separate from high temperature streams.

With regard to imports, the economic analysis shows that the costs of producing nonmetallic minerals used to manufacture refractory products (i.e., fire clay, kyanite, etc.) will not be significantly affected by the cost of NSPS controls. Furthermore, because these minerals are only one of several inputs in the refractory manufacturing process, the significance of very slight NSPS-related price increases is further reduced at the finished refractory product level. Consequently, there is no reason to expect that the prices of refractory products will increase to the extent that increased imports could result.

The EPA has concluded that the impacts of solid waste disposal would not be significant. Disposition of quarry, plant and dust collector waste materials depends somewhat upon State and local government and corporate policies. When fabric filter systems are used, about 1.4 megagrams (1.6 tons) of solid waste are collected for every 250 megagrams (278 tons) processed. In many cases this material can be recycled back into the process, sold, or used for a variety of purposes.

Where no market exists for the collected fines, they are typically disposed of in the mine or in an isolated location in the quarry. A 544 Mg/hr (600 TPH) crushing plant using dry collection for control would generate about 27.6 megagrams (30 tons) of waste over an eight hour period. This is about 0.5 percent of the plant throughput. Generally, the collected fines are discharged to a single haul truck at the end of the day and transported to the quarry for disposal. This dumping and transporting can be a source of fugitive dust if these operations are not protected from the wind or controlled by wet suppression. No subsequent air pollution problems should develop, provided the waste pile is protected from wind erosion.

Consequently, it is the EPA's judgment that the application of dry controls in the nonmetallic mineral industry will not have a significant solid waste disposal impact. Where wet dust suppression can be used, no solid waste disposal problem exists over that resulting from normal operation.

2.5.11 Comment: (IV-D-27, IV-D-30, IV-D-40)

One commenter pointed out that while the proposed standards are not expected to exceed 2 percent of the product price, this could easily be 20 to 25 percent of the company's profits. In addition, several commenters stated that the proposed standards will cause limestone and other producers to delay purchasing new equipment in order to be more competitive. They said this action will decrease the number of jobs in the equipment manufacturing and sales industries that have been depressed in recent years.

Response:

It may be true that for some plants during certain years, NSPS control costs could exceed 20 to 25 percent of a plant's profit. However, the Discounted Cash Flow (DCF) analysis considers cash flows over the entire useful life of the facility to judge how the incentive to invest is affected by the additional costs. Thus, although control costs relative to profit for particular years may be high, over the entire life of the plant such costs may be offset by several factors including: the increased ability to pass NSPS costs through to consumers in the form of higher prices; and reduced taxes due to investment tax credits and higher depreciation charges.

The DCF analysis has demonstrated that with the exception of certain size plants in some of the nonmetallic mineral industries, the feasibility of purchasing and operating new nonmetallic mineral processing facilities will not be changed by the costs related to the installation and operation of NSPS control equipment. While there may be isolated situations in which a producer might delay making an investment in new equipment, the DCF analysis indicates that such delays would not be warranted in most cases. Consequently, there is no reason to suspect that the outlook for the manufacturers of nonmetallic mineral processing equipment will be adversely affected.

2.5.12 Comment: (IV-D-44)

One commenter proposed that salt plants with a total production of less than 100,000 tons per year be exempted. According to the commenter, salt operations have a complex distribution system, with mining and initial processing being done at one central location and the product transported to several small satellite operations, often hundreds of miles away for further crushing, screening and bagging. These satellite operations have to comply with State and local emission regulations. The commenter suggested that small salt processing plants be exempt as are fixed crushed stone and sand gravel plants with capacities under 23 Mg/h (25 ton/h).

Response:

The economic analysis has concluded that the smallest new plant in the salt industry would need to raise prices about 1.2 percent in order to pass through all NSPS costs to consumers. This increase has been judged to be low in light of increases exceeding 13 and 15 percent for small crushed stone and sand and gravel plants, respectively. It should be noted that the 1.2 percent price increase mentioned above is based upon the assumption that SIP or local regulations do not exist, and, therefore, all control costs are attributed to the NSPS. If it is true that the satellite salt operations are covered by SIP and local regulations, the incremental control costs required to reduce emissions from SIP to NSPS levels would be lower than those used in the economic analysis. Consequently, the product price increase needed to pass-through NSPS costs would be less than the estimated 1.2 percent.

2.5.13 Comment: (IV-D-38)

One commenter stated that if a continuous mining machine used in the talc industry is covered by the proposed standards, the cost increase for the talc industry would exceed 2 percent.

Response:

Mining operations are not covered under the proposed or final nonmetallic mineral processing plant standards. Only those facilities listed in the proposed regulation (crushers, grinding mills, screening operations, bucket elevators, belt conveyors, bagging operations, storage bins, and enclosed truck and railcar loading stations) are covered by the standards.

2.5.14 Comment: (IV-D-34)

A trade association stated that EPA should separately assess the brick industry to determine whether brick plants pose environmental problems, whether any significant environmental benefits can be gained from imposing NSPS emission controls on the brick industry, and the economic costs of installing and operating such controls. They pointed out that during the standards setting process, no visits were made to brick plants, no meetings were held with representatives of the brick industry, and no tests were conducted at brick plants. Therefore, they claimed the data base is inadequate for requiring control on the brick industry. In addition, EPA listed brick and related clay products as a separate source category on the NSPS priority list and listed them as a lower priority than nonmetallic minerals. The commenters stated that the brick industry should not be grouped with mining operations that it has little in common with but should be analyzed separately for its emission reduction potential.

Response:

In response to this comment, EPA met with representatives of the Brick Institute of America and visited brick plants (Docket No. IV-E-4). The clay preparation stage of the brick manufacturing process will be covered under the standards of performance for nonmetallic mineral processing plants. This stage includes crushing, grinding, screening, and conveying operations similar to those at other nonmetallic mineral industries. While these operations are currently enclosed and controlled at many brick plants, visible emissions from a hammermill were observed escaping from a building at one plant. Brick plants have the potential to emit significant quantities of particulate matter which may endanger health and welfare. The purpose of standards of performance is to ensure that BDT is applied to new facilities as the nation's industrial base is replaced. A second purpose is to establish uniform regulations from State to State. Covering brick plants under these standards of performance will ensure that stringent emissions control is applied whenever new plants are built.

BDT is the same for affected facilities at brick plants as it is for affected facilities at other nonmetallic mineral plants. Baghouses and wet suppression have been designated BDT in the standards and are in use at many brick plants. However, since buildings enclose affected facilities at many brick plants, provisions have been added to the final standards to clarify emissions limits and techniques for measuring emissions from buildings (see Section 2.4.1 for details). In conclusion, the brick industry is not substantially different from other nonmetallic mineral processing industries, and these standards of performance are applicable to the brick industry.

The fact that the brick industry was listed separately on the priority list does not preclude the industry's inclusion in the nonmetallic mineral source category. It was determined that a separate standard for the brick industry is not necessary since the industry can be adequately covered under the nonmetallic mineral standards. Order of placement of the priority list does not influence the stringency of the standards promulgated for a source category.

2.5.15 Comment: (IV-D-12, IV-D-15)

Some commenters felt that the EPA's assumption for crushed stone and sand and gravel plants that 25 percent of the cost of control technology could be passed through to their customers every 4 years was unrealistic. Because of the low unit value of some of the minerals, the cost of transporting the product to the market must be kept low. They stated that for sand and gravel the cost of the material doubles every 20 miles. In many geographically competitive markets, they felt that a new plant would have to completely absorb the NSPS costs. One commenter felt that EPA has not considered the unfair competitive consequences which will occur when a fully portable construction aggregate processing plant, exempt from the regulations, is moved into an area to compete for construction jobs with a fixed plant subject to the regulations. He suggested that consideration be given to exempting both portable and fixed facilities below some level of production.

Response:

The economic analysis recognizes that the ability of individual producers to pass NSPS costs to consumers depends upon local market conditions, and in particular, the location of new plants relative to existing plants. Unfortunately, it would be impossible to conduct separate analyses for each local market, due to the large number of local markets that exist in the United States. Thus there is a need to make simplifying assumptions in the DCF analysis, but it should be understood that when such assumptions are made, care has been taken to avoid the understatement of impacts.

The assumption that new plants will be capable of passing through 25 percent of the total NSPS control costs each 4 years is a simplifying assumption made necessary by the wide variation in local market conditions. However, it is believed that in reality most new plants will be able to pass through NSPS control costs sooner. Among the factors that would promote faster pass through are: the relative cost-efficiency of new plants; the rate of turnover of existing plants; and the need for existing plants to comply with SIP emission limits and related costs. All of these factors have the effect of decreasing the disparity in operating costs between new and existing plants, thus promoting the more rapid pass-through of NSPS control costs to the consumers of the affected nonmetallic minerals.

With regard to the competitive consequences of exempt portable plants operating in the same areas as fixed plants subject to the NSPS, it seems that two situations might be possible. Specifically, the competition could be related to either new, exempt portable plants (i.e., those less than 150 tons/h), or older portable plants that were put into operation prior to the proposal of this NSPS.

In the former case it is highly unlikely that portable plants that are exempt from this standard will pose a threat to new fixed plants, because if the advantage of such portable plants is real, those who would build new fixed plants would use new portable plants instead. Because facilities at new fixed plants are expected to be the most common type of facilities which will be covered by the standards, potential investors in fixed plants will have adequate opportunity to use exempted (i.e., less than 150 tons/h) portable plants instead. However, because most new fixed plants would be of about 300 tons/h capacity, it is highly unlikely that two 150 tons/h plants could prove to be competitive replacements. This is true because the portable plants will need to comply with regulations other than the NSPS (e.g., SIP, PSD, and local regulations) and will have to overcome the considerable economies of scale associated with operating multiple small plants. It is apparent that economies of scale alone are capable of limiting the ability of two 150 tons/h plants to compete effectively with one 300 tons/h plant.

In the latter case, it is not true that older portable plants built prior to the proposal of this NSPS would have a significant cost advantage over new fixed plants. In this case the older portable plants would need to comply with SIP regulations, thus restricting any control costs differential as noted in the former case. In addition, it seems that the older portable plant would be less efficient relative to the new plant, due to higher maintenance expenditures, and the possible reliance upon an older technology.

2.5.16 Comment: (IV-D-12)

One commenter stated that because the minerals vary so much in price per ton, a more detailed economic analysis on a mineral commodity basis using current statistics would better anticipate the economic impact.

Response:

The economic analysis contained in the Background Document for the proposed standards has explicitly recognized the wide variation in prices for the nonmetallic minerals covered by the NSPS. Price per ton data were used to rank order minerals according to the percent price increases required to completely pass through NSPS control costs to the consumers of those minerals. Those minerals for which price increases were, in the worst case, expected to exceed 2 percent, were assessed more vigorously through the Discounted Cash Flow (DCF) analysis.

Updating the economic analysis through the use of more current statistics for prices and costs would not affect the conclusions of the economic analysis. This is because constant dollars, as opposed to current dollars, were used in the analysis (see Response 2.5.3). Constant dollars are adjusted to eliminate the effects of inflation. Constant dollars are expressed in terms of a base year. They provide a standard of reference for evaluating the real resource costs of a standard when such costs are incurred at different points in time. Furthermore, between the years of 1976 and 1979 when the economic analysis was performed, prices for nonmetallic minerals and costs of operating the NSPS control equipment have increased at a similar rate. Inflation has not altered the basic ratio of NSPS control costs to industry revenues over recent years, so the conclusions presented in the economic analysis are still applicable.

2.5.17 Comment: (IV-D-18)

One commenter suggested that because the cutoff points were determined based on production rates, the exemptions should also be based on actual production rates and not capacity. They also suggested that EPA base the cutoff point for portable plants on the percentage of time per year a facility actually operates using realistic production rates rather than maximum design process rates.

Response:

Regulations are typically based on a source's potential to emit. The EPA realizes that plants typically may not operate at full capacity, but they have the potential to do so. It would be extremely difficult and impractical to enforce a regulation based on actual production rates or hours of operation. If this were done, a single plant could be below the regulatory cut off in some years and above it in others.

Furthermore, having a cut off based on production rates should not seriously impact the industry. Unless they expand production, few, if any, existing plants will become subject to the regulations, because under the final standards replacement of existing affected facilities with new facilities of equal or smaller size is exempt from compliance with the emissions regulations. When plans for capacity expansions or new plants are made, the planners can take the NSPS size cut offs into account in deciding how much over-capacity to design for.

2.5.18 Comment: (IV-D-30, IV-D-50)

Two commenters stated that the equipment required under the proposed standards for portable plants would be expensive to purchase and would entail considerable expense every time they move. They represented small companies and do not feel that the economic impact analysis adequately addresses the impact on producers of their size.

Response:

The portable plant analysis contained in Supplement A of the Background Document for the proposed standards has recognized control costs specific to portable plant operations. That analysis has explicitly considered both the cost to purchase and operate NSPS control equipment, as well as the cost to move this equipment as the portable plant moves from one site to another. Among the costs specific to portable plant operations considered in Supplement A are: control system investment, operating and maintenance costs; control system setup costs; control system dismantling costs; the cost to lease and operate a crane to move the control system; and the cost to transport the control system to a different site. These costs have been evaluated under two methods of portable plant operation, that is, movement to four different quarries per year, and 24 moves within the same quarry per year.

The portable plant analysis has been structured to allow consideration of impacts upon firms of all sizes. This has been accomplished by considering a wide range of plant sizes, under the assumption that the plant operates as a separate business entity. Consequently, because the analysis has examined small plants operating as separate businesses, it is felt that small companies have been appropriately addressed in the portable plant analysis.

2.5.19 Comment: (IV-D-34)

One commenter stated that the change in the affected facility definition from the entire processing plant to each piece of equipment at a plant was made only recently. They were concerned that no adjustment was made to the economic impact analysis to take into account the additional economic burdens of applying the NSPS to each piece of equipment.

Response:

The economic analyses presented in the Background Document for the proposed standards included the cost of controlling each piece of equipment at new and expanded plants. Therefore, the economic analyses would give the same results regardless of whether the entire plant or individual pieces of equipment are designated the affected facility. Economic impact had to be analyzed on plant and industry levels of aggregation, since one piece of equipment is not a business unit. Cost and economic impacts for the two most likely patterns of growth, opening of new plants and expansions at existing plants, were analyzed. Replacement of individual affected facilities was not analyzed because it was believed to be unlikely. However, replacement of affected facilities with equipment of the same or smaller size has been exempted from compliance with emission limits in the final standards. Since this exemption has been provided, there will be no economic impacts on plants replacing worn-out equipment. Thus the EPA's economic impact analysis adequately represents the economic impacts of the standard where the affected facility has been designated as the individual piece of processing equipment.

2.5.20 Comment: (IV-D-41)

One commenter suggested that since the costs refer to the fifth year after proposal they be presented in 1989 dollars rather than 1979 dollars.

Response:

The expression of control costs in any base year other than 1979 dollars would not affect the conclusions presented in Chapter 8 of the Background Document for the proposed standards. The broadest measures of economic impact used in the Background Document are based upon a comparison of NSPS control costs to the revenues generated through the sale of nonmetallic minerals by the affected plants. The economic impact analysis was conducted using constant as opposed to current dollars (see Response 2.5.3). Constant dollars are adjusted to eliminate the effects of inflation. They are expressed in terms of a base year. The economic analysis of stationary plants in the Background Document for the proposed standards used constant 1976 dollars while the portable plant analysis used constant 1979 dollars. For comparitive purposes, the costs were escalated from 1976 to 1979 dollars in the preamble to the proposed standards (48 FR 39566, August 31, 1983). Because both NSPS control costs and revenues must be expressed in the same dollars, the magnitude of costs relative to revenues will be similar regardless of the year dollars used as the base. Furthermore, it is impossible to predict accurately the value of the dollar in 1989.

2.5.21 Comment: (IV-D-26)

One commenter suggested that productivity losses may occur with the application of wet dust suppression and that any loss of capacity due to control technology must be included in the cost of the regulations.

Response:

The economic impact analyses were based on baghouse control of all affected facilities because this is a universally applicable technology in the industry. It was found that plants covered by the proposed and final regulations would be able to afford the costs of baghouse control. Wet suppression is generally cheaper than baghouse control and is allowed under the proposed and final regulations. Droplets are usually small and evaporation occurs rapidly after contact with the dust. In some newer types of wet suppression systems, evaporation occurs immediately. Therefore, production losses are not likely to occur. However, if in a particular case wet suppression is more expensive than a baghouse, it is assumed the plant would use baghouse control technology. The costs of baghouses have been analyzed and found to be reasonable.

2.6 ENVIRONMENTAL IMPACT

2.6.1 Comment: (IV-D-3, IV-D-18, IV-D-31, IV-D-32, IV-D-37)

Five commenters questioned whether the proposed standards would reduce the total amount of particulate matter emissions into the atmosphere by 41,000 megagrams per year (45,000 tons per year). Two of these commenters stated that this is a paper estimate that overstates the benefits to air quality. One commenter also stated that the EPA's assumption that the process weight regulation, which represents the maximum allowable emission rates authorized by State Implementation Plans (SIP's), would represent actual emission rates, and that the proposed NSPS could reduce those potential emissions by 90 percent, causes the reduction estimates to be overstated. They felt that because the States rely on some form of effective dust control, which is usually a wet dust suppression system, a 90 percent reduction is not realistic. Another commenter suggested that when you consider what would actually be required in the absence of the proposed standards, the reduction that would be achieved by the standards is probably closer to 50 percent. One commenter questioned how anyone can reasonably estimate a reduction in emissions over a 5-year period because no one knows how many new facilities will be constructed or how many old ones will be modified or reconstructed. In addition, he pointed out that no one knows what percentage of the facilities will be controlled with baghouses and what percentage will use wet dust suppression systems.

Response:

The 41,000 Mg (45,000 tons) per year emission reduction is an estimate made by EPA using the best available data and reasonable assumptions. Baseline emissions (those which would occur in the absence of an NSPS) were estimated by assuming new and expanded plants would comply with typical State process weight regulations. These were compared with emissions estimated to occur if new and expanded plants were controlled to the level required by the proposed NSPS. For details on the procedure, see Section 2.1.7. By this method of estimation, the emissions reduction achievable under the proposed NSPS was found to be 41,000 Mg/yr (45,000 tons/yr). This is a reduction of 90 percent over baseline emissions. (The 90 percent reduction was calculated from the results of the analysis; the commenter is apparently confused in thinking it was an assumption used in the analysis.)

The analyses assumed baghouses would be used by all new plants to meet the proposed standards. However, wet suppression could be used as long as the standards are met. The effectiveness of wet dust suppression systems cannot be quantified in terms of emissions. However, where their use is feasible technologically, they are almost as effective as baghouse systems in reducing visible emissions. They cost about one-third as much as baghouses and use less energy. Therefore, the Administrator has determined that the small difference in visible emissions is justified by the large difference in cost and energy usage and has selected wet dust suppression as well as baghouses as BDT for cases where it can be used.

The EPA recognizes that there are uncertainties in the 41,000 Mg/yr (45,000 tons/yr) emissions reduction estimate. Variability in current control levels and variability in processes and emissions occurring at individual plants within each industry and among the 18 nonmetallic mineral industries lead to uncertainty in emissions estimates. Furthermore, economic predictions of the growth of the industries are always uncertain. However, the estimates are based on reasonable assumptions and are adequate for decision making purposes.

The sources of particulate matter regulated under the nonmetallic mineral NSPS have been found to be significant contributors to particulate emissions which may reasonably be anticipated to endanger public health and welfare. For this reason, they were included on the EPA's priority list of source categories for which NSPS must be promulgated (44 FR 49225, August 21, 1979). The EPA's emissions reduction estimate of 41,000 Mg/yr (45,000 tons/yr) supports the conclusion that potential emissions reductions are significant, but the actual magnitude of emissions reductions are not important for standards promulgation. Since the source category has been listed, and EPA has identified a BDT for certain facilities at nonmetallic mineral plants which can be applied for a reasonable cost, Section 111 of the Clean Air Act requires that an NSPS must be promulgated.

2.6.2 Comment: (IV-D-13, IV-D-28)

Two commenters were concerned that the proposed standards did not address particle size, particle drift, re-entrainment, particle deposition, or property line standards. They stated that it is unclear how a significant reduction in ambient particulate concentrations will result from setting the proposed standards, since neither particle size nor property line concentrations are considered. One commenter also felt consideration should be given to the amount of material emitted that falls within the respirable range and this regulation coordinated with the proposed regulation in that area. Another commenter (IV-D-22) said once the new National Ambient Air Quality Standard (NAAQS) revisions are promulgated, EPA should establish emission limits for the finer size particles.

Response:

Under Section 111 of the Clean Air Act, it is not necessary to estimate or prove impacts on particulate concentrations in ambient air to promulgate an NSPS. Particulate matter has been identified as a criteria pollutant which may reasonably be anticipated to endanger health and welfare (EPA-600/8-82-029a-c). Nonmetallic mineral processing plants have been included on the EPA's priority list of source categories for which an NSPS must be promulgated under Section 111(f) because of their potential to emit particulate matter which may reasonably be anticipated to endanger public health and welfare (44 FR 49225, August 21, 1979).

The EPA is therefore required by law to promulgate standards. In order to set standards under Section 111, EPA must show that emissions can be reduced by the application of best demonstrated technology. BDT is the best system of continuous emissions reduction which has been adequately demonstrated for the category of sources considering cost and any nonair quality health, environmental, and energy impacts. The EPA is not required to estimate effects on ambient air quality.

One commenter questions whether EPA should consider particle size and evaluate the nonmetallic mineral NSPS in terms of the proposed revision to the NAAQS for particulate matter based on particle size. The EPA is currently evaluating the proposed change in the NAAQS for particulate matter based on particle size considerations. The new NAAQS has not been promulgated in final form. If the proposed changes in the NAAQS are promulgated, the secondary NAAQS standard will still be based on total particulates of all sizes, so total particulates will still be a consideration in standards development. Furthermore, nonmetallic mineral processing plants do emit respirable particulates. Controls which have been specified as BDT in these standards achieve substantial reduction of particulate matter, including respirable particulates. Baghouses have been shown to attain greater than 99 percent collection efficiency even for material of submicron sizes (48 FR 39569, August 31, 1983). For these reasons, the proposed revision of the particulate matter NAAQS would not significantly affect the need for the nonmetallic mineral standards or the control technology and emission limits specified in the standards.

2.6.3 Comment: (IV-D-13, IV-D-15, IV-D-16, IV-D-17, IV-D-26, IV-D-35, IV-D-36)

Six commenters stated that the total reduction of 41,000 Mg/yr (45,000 tons/yr) in the fifth year after proposal is only about 0.02 of 1 percent of the total particulate emissions annually generated from unpaved roads. They questioned the significance of the nonmetallic mineral processing industry's contribution to the nation's total suspended particulate problem.

Response:

The sources of particulate matter emissions regulated under the nonmetallic mineral NSPS have been found to be significant contributors to particulate emissions which may reasonably be anticipated to endanger public health and welfare. For this reason, they were included on the EPA's priority list of source categories for which NSPS must be promulgated (44 FR 49225, August 21, 1979). The EPA estimates emissions can be reduced by 41,000 Mg/yr (45,000 tons/yr). This is a large and significant number, despite the fact that percentages may be small when compared to even larger numbers. Particulate matter sources are dispersed, each contributing a small percent of a large total emission. The EPA has identified a BDT for certain facilities at nonmetallic mineral plants which can be applied for a reasonable cost, so an NSPS is being promulgated. Analysis of the relative potential emissions from nonmetallic mineral industries versus other source categories is not required before promulgation of this NSPS.

Other sources of emissions at nonmetallic mineral processing plants, as well as emissions from other source categories, will be considered for standards development in the future. If a BDT which will reduce emissions from considered sources can be established, and economic analyses show it can be applied at a reasonable cost, then standards will be developed. The timing of standards development for various emission sources will depend on the EPA's time and budget constraints.

2.7 ENERGY IMPACT

2.7.1 Comment: (IV-D-27, IV-D-30, IV-D-40)

Three commenters pointed out that the preamble states that the use of wet dust suppression would increase the amount of energy used by 15 percent over the amount of energy used if additional controls were not required. Because energy is one of the biggest cost factors in limestone production, they felt a 15 percent increase is a very substantial cost increase that should be given careful consideration.

Response:

The EPA's economic analyses were based on the use of baghouses, a universally applicable control technology for the industry. Energy costs were included. Energy requirements were calculated for model plants of different sizes with either crushing operations only or both crushing and grinding operations. Fabric filter control was found to increase a plant's energy consumption by 5 to 20 percent. The cost of this energy was included in all economic analyses. Price screening found that for 17 of 23 industries considered, the costs of control would cause a maximum price increase of less than 2 percent assuming all control costs were passed through to consumers. Further economic analysis determined that for all industries, the annualized control cost is less than 2 percent of the annual revenue for that industry. Discounted Cash Flow (DCF) analysis of various size model plants in the six industries with price increases over 2 percent showed that the plants covered by the standards would be economically feasible despite control costs. The total costs and economic impacts of control were, therefore, found to be reasonable for the size plants covered by the proposed and final regulations. Wet suppression systems are generally less expensive than baghouses, and plants may use this technology if they consider it more practical than baghouses and can meet the standards.

2.8 SELECTION OF BEST DEMONSTRATED TECHNOLOGY

2.8.1 Comment: (IV-D-7, IV-D-12, IV-D-15, IV-D-16, IV-D-17, IV-D-26, IV-D-35, IV-D-37)

Several commenters stated that the proposed standards are truly performance-oriented by allowing for wet dust suppression as well as capture and control devices. One commenter stated that at most wet pit sand operations, no add-on control equipment would be necessary to meet the proposed limits. One commenter requested that the discussion on wet dust suppression systems should note that water freezes in the northern tier of States during the winter; and in dry and arid areas, water may be unavailable or too scarce and precious to use on dust control. One commenter noted that wet suppression can cause extra wear on metal parts and blinding of screens. Others believed use of wet suppression would interfere with product specifications.

Response:

The EPA has determined that both baghouses and wet suppression are efficient control devices and are best demonstrated technology (BDT). It is stated in the Background Document for the proposed standards (EPA-450/3-83-001a) that wet suppression cannot be used in all cases. Freezing conditions, lack of available water, and interference with certain processing steps or product specifications may limit the use of wet suppression at certain plants. In such cases, baghouses (also specified as BDT) or other control techniques could be used to meet the standards. Where it can be applied, wet suppression is an effective control technique which costs about one third as much as a baghouse and uses less energy, so it has also been designated as BDT.

2.8.2 Comment: (IV-D-39)

One commenter was concerned that the allowance of wet dust suppression systems would result in a trend away from the use of control devices such as baghouses which have been proven effective in controlling emissions from these sources.

Response:

The EPA has determined that wet dust suppression is effective at controlling particulate emissions from the sources covered by the standards. The exact effectiveness of wet dust suppression systems cannot be quantified in terms of mass emissions. However, where their use is technologically feasible, they are almost as effective as baghouse systems in reducing visible emissions. Furthermore, wet suppression systems cost about one-third as much as baghouses and use less energy, so are very cost effective control measures. The EPA does not want to preclude the use of wet suppression simply because of the inability to quantify exact mass emissions reduction. Therefore, both baghouses and wet suppression are BDT.

2.8.3 Comment: (IV-D-18)

One commenter requested that only wet dust suppression systems be identified as BDT for portable plants because baghouses are not proven control devices for these plants.

Response:

Both wet dust suppression and baghouses have been determined to be BDT for portable plants. However, an owner or operator may use any control technology as long as the standards are met. Baghouses have been demonstrated to be an effective and feasible control technique for the 18 nonmetallic mineral industries regulated under the standards. One factor which might make the economic feasibility of baghouses different for portable and fixed plants, is the cost of moving control devices when portable plants move. The EPA performed an economic analysis to investigate this question. It is presented in Supplement A of the Background Document for the proposed standards. Discounted Cash Flow (DCF) analyses were performed to determine the profitability of various size portable plants using baghouse control. Five plant sizes with two different configurations and two baghouse control options were modeled. Costs of disassembling, moving, and reassembling control equipment were included. Plants were assumed to move four times per year between quarries or 24 times per year within one quarry. It was determined that baghouse control would be feasible for portable plants larger than the sizes exempted from the regulations.

2.9 SELECTION OF FORMAT FOR STANDARDS

2.9.1 Comment: (IV-D-34)

One commenter recommended that EPA specify a mass emissions limitation to be used at the election of those plant owners or operators which have the capability to measure short-term production rates. He stated that EPA based its decision not to specify a mass emissions standard upon its finding that most nonmetallic mineral processing plants do not measure the production or feed rate of a process operation over the short term. However, EPA acknowledged that a mass emissions standard would be more meaningful because it relates directly to the quantity of emissions discharged into the atmosphere.

Response:

The final emission limit will be in a concentration format rather than in a mass emissions format. The EPA's test data do not allow the establishment of a mass emissions standard because the process throughputs were not measured during the testing. Thus, mass emissions per unit of production cannot be calculated. Furthermore, nonmetallic mineral processing plants typically do not measure production or feed rate over the short term, so they would find it difficult to determine compliance with a mass emissions standard.

The EPA's test data does support the development of a concentration standard of 0.05 g/dscm (0.02 gr/dscf). While the preamble to the proposed standards states "a mass standard may appear more meaningful in the sense that it relates directly to the quantity of emissions discharged into the atmosphere;" it concludes that a concentration standard is also meaningful (48 FR 39572, August 31, 1983). The EPA reaffirms this conclusion and has finalized the standard in a concentration format.

2.10 SELECTION OF EMISSION LIMITS

2.10.1 Comment: (IV-D-5, IV-D-10, IV-D-18, IV-D-19, IV-D-25, IV-D-26, IV-D-28, IV-D-33, IV-D-36, IV-D-42, IV-D-56, IV-E-5)

Nine commenters stated that the 7 percent opacity limit for emissions discharged from a stack unless a wet scrubbing device was used is too low. Six of these commenters suggested the limit be raised to 10 percent. Two commenters suggested the limit be raised to 15 percent. One commenter noted that visible emissions had been observed during a test of baghouse performance at his plant, however, no opacity measurements were performed. Most of the commenters stated that the eye is not calibrated well enough to distinguish between 5, 7, and 10 percent opacity. Because the observers are trained to read in 5 percent increments, they felt the limit set should be divisible by five. Several commenters stated that the EPA Reference Method 9 is only an estimation technique accurate to plus or minus 7.5 percent opacity. They questioned whether a 7 percent limit can be consistently and reliably enforced using this method. One commenter felt that the limit was not entirely unreasonable because a properly maintained baghouse for nonmetallic mineral processing will almost always show less than 5 percent opacity. Another commenter stated the appropriateness of the standards is confirmed through statements from persons proposing new nonmetallic mineral processing plants in San Diego County. He said that from these statements, indications are that baghouse manufacturers have guaranteed particulate emission performance not exceeding 10 percent opacity for a period or periods aggregating 3 minutes in any 60-minute period.

Response:

The EPA's opacity limit for stack emissions is well supported by test data summarized in the Background Document for the proposed standards (EPA-450/3-83-001a). Test data from 25 baghouse controlled facilities demonstrates the achievability of the 7 percent stack opacity standard. At 21 baghouses, the maximum 6-minute average opacity was 0 percent; at three baghouses, the 6-minute average was 1 percent; and at one baghouse, it was 6 percent. The commenters submitted no data to support their suggested changes to the opacity standard. No reason has been found to raise the standard.

Opacity results from Method 9 tests represent the average of 24 readings over a 6-minute period. While each reading is recorded as an increment of 5 percent opacity, the average of all the readings can be any value. The new source performance standard is based on 6-minute averages and, therefore, is not limited to an increment of 5 percent opacity.

Contrary to the commenters' suggestions, Method 9 does not require that the maximum 7.5 percent positive error discussed in the section entitled Certification Requirements be taken into account for enforcement purposes. The only portion of Method 9 addressing the enforcement issue is the introductory section. That section requires that the accuracy of the method be considered for enforcement purposes and describes the precision for a single run by one observer. The introduction does not suggest an average positive error of 7.5 percent.

2.10.2 Comment: (IV-D-13, IV-D-33, IV-D-39)

Three commenters questioned the need to set a uniform stack opacity standard or the basis upon which the standard was set. One commenter suggested that the stack opacity standard be eliminated and reliance be put on the mass per volume concentration standard because the actual quantity of dust emitted is the factor which has the potential to affect human health and welfare. One commenter felt that because the observation of visible emissions is an important enforcement tool for the States, a case-by-case adjusted opacity standard should be set for any control device including wet scrubbers. Another commenter stated that the opacity standards are based on observations of 25 baghouses at four crushed stone plants and one sand and gravel plant. Some commenters felt the limited sample size does not consider naturally occurring variations in sand, gravel, and stone deposits that could significantly affect emissions. They claimed this is a very unscientific and statistically inaccurate method of setting performance standards.

Response:

An opacity standard was set to ensure that air pollution control systems controlling stack emissions are properly installed, operated, and maintained. Properly operated baghouses can meet the 7 percent opacity limit, and readings above this would indicate a problem in system operation. Opacity can be quickly and easily measured at very low cost, so it is a more practical method of routine monitoring than instrument methods used to test compliance with the concentration standard. For these reasons, an opacity standard is believed to be a necessary part of the stack emissions standard.

A uniform opacity standard is necessary for efficient enforcement of the regulation. The opacity standard for stack emissions would be applicable in all cases unless EPA were to approve establishment of a special opacity standard under the provisions of 40 CFR 60.11(e). The provisions allow an owner or operator to apply to EPA for establishment of a special opacity standard for any source that meets the applicable concentration standard (demonstrated through performance tests under conditions established by EPA) but is unable to meet the opacity standard despite operating and maintaining the control equipment so as to minimize opacity. A special opacity standard might be established, for example, where an unusually large diameter stack precludes compliance with the proposed opacity standard.

No opacity standard was proposed for scrubbers, because opacity does not correlate with particle concentrations for this type of control. Some high opacity readings (25 percent) were observed at very low outlet concentrations (0.006 gr/dscf) at scrubbers on metallic mineral processing plants, while readings of 0 percent opacity were observed for outlet concentrations near 0.02 gr/dscf. Opacity standards were not set for wet scrubbers, but monitoring and reporting of pressure drop and scrubber liquid flow rate is required by the standards (see Section 2.12.2). This monitoring will ensure that control devices are properly operated and will allow the detection of operating problems on a routine basis.

The stack opacity standard is based on 25 baghouses from various types of equipment at five crushed stone plants (three limestone and two traprock plants), a fullers earth plant, a kaolin plant, a feldspar plant, and five metallic mineral processing plants. The metallic mineral industry data were included because this industry uses the same type of equipment as nonmetallic mineral plants, and key parameters of emissions such as particle size distribution and mass loading are similar for both industries. Furthermore, ores from which metallic elements are extracted are primarily nonmetallic, and emissions from metallic mineral processing operations are primarily nonmetallic mineral constituents.

A range of particle sizes and inlet loadings were covered by these tests. At kaolin plants, 70 percent of emissions from grinding mills are under 5 μm in diameter, while average particle sizes at some crushed stone operations were 20 μm. It is felt that the tests are representative of the range of conditions found in the 18 nonmetallic mineral industries. At 21 of the 25 baghouses, the maximum 6-minute average was 0 percent opacity, at three baghouses the 6-minute average was 1 percent, and at one, it was 6 percent. All could meet the 7 percent stack opacity standard (EPA-450/3-83-001a, EPA-450/3-82-014).

2.10.3 Comment: (IV-D-10, IV-D-15, IV-D-16, IV-D-17, IV-D-18, IV-D-19, IV-D-20, IV-D-21, IV-D-25, IV-D-26, IV-D-28, IV-D-35, IV-D-36, IV-D-37, IV-D-40, IV-D-42, IV-D-48)

Sixteen commenters objected to the opacity limits for fugitive sources of 10 and 15 percent. Several commenters felt that these limits could not be consistently met. One commenter stated that impact crushers will easily exceed the 15 percent limit during startup periods or periods when there is a break of material feeding in. One commenter felt that the current opacity limits were unreasonable. He stated that at 15 feet a very small fugitive emission could easily put a source in violation when there really would not be much of an impact on the ambient health standard. Two other commenters stated that the emissions from a processing plant tend to be diffuse and inconsistent with time, and to emanate from ground level. In addition, because the sources are close to each other, commenters said it is not possible to enforce a 10 percent and a 15 percent limit. They felt one limit should be set for all fugitive sources at a plant. Four commenters suggested an opacity limit of 20 percent be set for the entire plant. Five other commenters suggested the limit be 15 percent. One additional commenter requested the limits be 30 percent for crushers and 20 percent for all other sources. One commenter stated that the results of emission tests supplied by the National Lime Association show that a 10 percent limit for fugitive sources is not technologically feasible. On the other hand, one commenter stated that the proposed standards would help the State of Colorado control these sources by decreasing the allowable opacity from 20 percent. No commenters provided opacity data to support their comments.

Response:

The EPA's test data show that affected facilities can meet a 10 percent fugitive emissions standard (15 percent for crushers at which capture systems are not used). The EPA measured opacity of fugitives escaping from hoods and enclosures of capture systems at 53 affected facilities at 13 different types of plants. Seven plants processed nonmetallic minerals and six processed metallic minerals. Types of plants included crushed limestone, traprock, feldspar, gypsum, mica, and talc. Crushers, grinding mills, screens, transfer points, bucket elevators, product bins, and bagging operations were tested. The 6-minute average opacity at 35 of the 53 facilities was 0 percent. Only two facilities exceeded 5 percent opacity at any time, and all could meet the 10 percent opacity limit.

Fugitive emissions were also tested at four crushed stone (limestone, granite) and one sand and gravel plant using wet suppression, and at a traprock and a feldspar plant using wet suppression to control some operations. Two plants were portable. The plants were selected with the aid of industry representatives. At all process equipment (except crushers) being operated under normal conditions for which the wet dust suppression system was properly designed and operated, emissions were below 5 percent opacity. At crushers operated under the same conditions, emissions were below 15 percent opacity. Based on these data, plants using wet suppression should be able to meet the fugitive opacity standards of 10 percent for all affected facilities, except crushers where capture systems are not used. The standard for such crushers is 15 percent. If a plant cannot meet these standards using wet suppression, baghouses can be used.

In response to the commenter's concern about effects of emissions on ambient air quality, Section 2.6.2 explains that consideration of effects on ambient air is not required in the development of NSPS.

The standards contain stipulations for the use of Method 9 which address the commenters' concerns that if affected facilities are close to each other, it may be difficult to measure opacity of emissions from each source. The EPA followed the stipulations for observer positioning in Section 60.675(c) during its testing program, and found that cases where opacity of emissions from an affected facility cannot be measured due to interfering emissions are very rare. In most cases, repositioning of the observer or waiting for a change in wind conditions will allow the emissions to be read separately. In such cases, opacity of emissions from each affected facility must be read separately to determine compliance with the standards. Furthermore, the majority of affected facilities covered by the standards will be located at new plants or expansions of existing plants, and owners or operators of these may choose to plan the location of new facilities so that emissions do not interfere.

However, sometimes affected facilities may be located above and below one another, so emissions from one facility pass through the other facility and the emission streams are continuously combined. Although EPA believes situations were emissions from two or more facilities continuously interfere will be rare, provisions have been added to Section 60.675(c) clarifying the use of Method 9 to determine compliance in such situations. If opacity from an individual facility cannot be measured, the owner or operator may demonstrate compliance with the emission limits in Section 60.672 by either (1) demonstrating that the combined emissions from the facilities meet the highest fugitive opacity limits applicable to any of the individual affected facilities contributing to the emissions stream or (2) separating the facilities or emissions so that the opacity of emissions from each facility can be measured to determine compliance. This issue is discussed in greater detail in Section 2.12.1.

In conclusion, EPA has shown that the fugitive opacity standard can be met, and it has not been changed between proposal and promulgation.

2.10.4 Comment: (IV-D-22)

One commenter requested that for the asphalt concrete industry, the proposed limit be raised to 0.04 gr/dscf, the same as the limit set by the asphalt concrete NSPS. He also felt that the opacity standard at asphalt plants should be 20 percent, the same limit as set for the rest of the plant by the asphalt plant NSPS.

Response:

The commenter did not mention any distinctive elements of the asphalt process which would justify a standard different from that applied to other nonmetallic mineral industries. The portions of the asphalt plants covered under these standards are the initial crushing and grinding operations, which are similar to operations in the other nonmetallic mineral industries. Later steps in the process, after asphalt concrete has been produced, are not covered. The test data explained in Sections 2.10.1 through 2.10.3 are applicable to the range of conditions found at asphalt plants and demonstrate that the proposed stack and fugitive opacity standards can be met. Therefore, the standards have not been changed for asphalt concrete plants.

2.10.5 Comment: (IV-D-12, IV-D-15, IV-D-16, IV-D-17, IV-D-26, IV-D-35)

Six commenters stated that while they agree that there are many similarities between the metallic and nonmetallic mineral processing industries, there are limits to the transferability of data. They cited three limitations. First, the per ton value of the metallic minerals is higher than that of nonmetallic minerals. Second, collection devices are often used in the metallic mineral industry primarily to collect valuable products as opposed to capturing particulate emissions. Third, different percentages of material go through all processing phases at particular plants and in particular industries. Therefore, different emission levels and different size particulate emissions could occur from plant to plant.

Response:

Metallic mineral industry data were included to broaden the data base and further the EPA's understanding of control device performance under worst case conditions. The metallic mineral processing industry data included were from plants using process equipment and controls similar to those used in nonmetallic mineral industries. As noted in the Background Document for the proposed standards, key parameters of emissions such as particle size distribution and mass loading are similar for metallic and nonmetallic mineral industries. Furthermore, ores from which metallic elements are extracted are primarily nonmetallic, and emissions from metallic mineral processing operations are primarily nonmetallic mineral constituents.

The cost data used for the price screening and discounted cash flow (DCF) analyses came solely from nonmetallic mineral industries, so the commenters' concern about the higher cost per ton of metallic minerals has no impact on the EPA's analysis of the economic feasibility of the standard.

The metallic mineral plants tested use baghouse control for the same types of affected facilities as the nonmetallic plants tested. The reason these plants use baghouses (product recovery versus emissions control) is not important to the performance of the baghouses.

The EPA recognizes the fact that particle size distribution and emission levels vary from plant to plant both within and between industries, but the EPA's tests represent the range of variability found in nonmetallic mineral processing operations. Particle size data at nonmetallic mineral facilities tested by EPA show that particle size ranges from a median particle diameter of 1.5 μm at the fluid energy mills at a fuller's earth plant and 3.5 μm for a roller mill at a kaolin plant up to 20-25 μm at ball mills at a feldspar plant and at the primary crusher, hammermill, and final screen at a limestone plant (EPA-450/3-82-014). At metallic mineral facilities tested, there was also a range of particle sizes. The median particle size was 4 μm for truck dumping stations at a copper ore plant, while 95 percent of the emissions from a primary crusher complex were over 8 μm (the median was not recorded but would be larger than 8 μm) (EPA-450/3-83-001a). Particular attention was given to collection of small particles since these are generally considered more difficult to collect. Baghouse systems at all facilities tested at these metallic and nonmetallic mineral processing plants met the proposed stack and fugitive emissions standards.

2.10.6 Comment: (IV-D-19)

One commenter felt that the stack limit of 0.02 grains per dry standard cubic foot (0.02 gr/dscf) is too restrictive for the refractories industry. He said that refractories manufacturing requires substantially smaller, dryer particles than those required for other minerals and uses. In addition, baghouse operations at refractories have higher air flows and operate at temperatures well above the ambient temperature. Because all of these factors affect baghouse performance, the commenter requested the limit for his industry be raised to 0.04 gr/dscf.

The EPA met with The Refractories Institute in order to discuss the comments summarized above (Docket No. IV-E-5). There, the commenter stated that emissions from a baghouse controlling the dry pan grinder at one refractory plant were 0.0279 gr/dscf. The test was conducted using EPA Method 5, and the grinder was processing a 14 mesh Granville material (a pyrophyllite-bearing ore). The commenter believed the test was evidence that a 0.02 gr/dscf emission standard can not be met by refractory plants.

Response:

The stack particulate emissions standard is 0.02 gr/dscf for nonmetallic mineral processing plants including nonmetallic mineral processing facilities at refractory plants. The only facilities at refractory manufacturing plants which are covered by the standards are those processing nonmetallic minerals. These facilities are similar to those at other types of nonmetallic mineral processing plants. The EPA believes that fine particle sizes were adequately considered during the development of the standards. Tests on control of emissions from clay processing facilities with median particle diameters as low as 1.5 μm showed that the standards could be achieved using baghouse technology.

The EPA has considered the test report submitted by the commenter (Docket No. II-D-75), and does not believe it demonstrates that the standards are unattainable. The 0.0279 gr/dscf emission rate is based on a single test run rather than on the three runs required by EPA. There are also several irregularities in the test report, which are documented in Docket Item II-B-64. For example, the number of bags and air/cloth ratio reported were not consistent with the baghouse model specified. There were no data on inlet loadings. Outlet dust concentrations appeared to be much too high for a properly functioning pulse jet baghouse, however, without complete operating parameters, EPA could not identify the reason for this. Possible reasons include the use of too permeable a fabric, overvigorous cleaning, or undetected leaks in the system due to bag or housing defects. The test report showed that emission limits were met when a 3-mesh material was being processed at the facility. A change in materials often requires a change in the cleaning cycle in order to allow the filter cake to build up and the baghouse to operate efficiently. In view of the uncertainties surrounding this test, EPA does not believe it is necessary to modify the proposed 0.02 gr/dscf emission limit. Numerous tests of baghouses at similar affected facilities, summarized in the Background Document for the proposed standards, show that the standards can be met.

As detailed in Section 2.5.10, EPA met with the commenter to better understand his comments regarding high temperature sources (Docket No. IV-E-5). The commenter specified that emissions from dryers are generally between 100 and 180°F. The EPA does not believe that such baghouse operating temperatures for affected facilities in the refractories industry will substantially increase costs or cause the emission limits to be exceeded. Calciners, dryers, and similar sources which operate at the temperatures given above or at higher temperatures generally are not covered under this NSPS, but are being considered for coverage under separate calciner/dryer standards being developed by EPA. The nonmetallic mineral standards will cover dryers in the following two cases. (1) Combined crusher-dryer or grinder-dryers will be covered. These are facilities where hot air is introduced into a crusher or grinder in order to dry the material as it is crushed. (2) If calciners or dryers are ducted together with affected facilities, then the emission stream would be subject to the NSPS emission limits. The EPA has estimated the costs of controlling combined dryer-grinder systems, and found these costs to be reasonable. Tests of such facilities have shown that the 0.02 gr/dscf standard can be met. In the second case, systems where dryers are ducted together with affected facilities are not typical, and EPA has found that the costs of control in known situations where this does occur are reasonable. The response to comment 2.5.10 details information on high temperature sources and on the economic feasibility of requiring controls at refractory manufacturing plants.

2.10.7 Comment: (IV-D-20, IV-D-42)

One commenter stated that the standard of 0.02 gr/dscf is not more stringent than the State of Wyoming currently requires. He also stated that most manufacturers of baghouses will guarantee this proposed rate. Another commenter stated that baghouse manufacturers will guarantee a rate of 0.01 gr/dscf and, therefore, the standard should be lowered to that rate.

Response

The EPA's data support the achievability of the proposed 0.02 gr/dscf standard in all cases; however, the same is not true of a 0.01 gr/dscf level. The EPA tested emissions from properly designed and operated baghouses at nonmetallic mineral plants under normal operating conditions. The test data show that the 0.01 gr/dscf level was exceeded in several cases, and could not be considered an achievable standard using BDT.

2.10.8 Comment: (IV-D-23)

One commenter felt that standards should be set for each mineral process to reflect BDT rather than setting a single standard for 18 industries. He felt the current approach leads to less stringent standards.

Response:

Processes, emissions, and control technology for the 18 nonmetallic mineral industries regulated under this NSPS are similar. BDT for particulate control (baghouses and wet suppression) is the same for all 18 industries. Individual analysis for each industry would not change the selection of BDT or the emission limits. A range of particle sizes and types of minerals were considered in the EPA's emissions tests. Tests show that particle size and type of mineral processed have little influence on baghouse performance (EPA-450/3-83-001a).

Depending on product specifications for any individual plant, there can be tremendous variation in size of particulates within one industry as well as between industries. The BDT and emission limits that were effective and applicable to all sources under this typical variety of operating conditions were selected, and this same BDT and emission limit would have been selected for all industries whether they were covered under one NSPS or individually.

2.10.9 Comment: (IV-D-22, IV-D-33)

Two commenters felt that because nonmetallic minerals vary considerably as to fineness of the particles, hardness, and the requirements of crushing to meet product specifications, the proposed standards are unreasonable. One commenter felt that EPA should exempt from the proposed standards any mineral which was not tested. The other commenter suggested that EPA permit each State to set its own standard with EPA having the authority to approve the State's requirements. They felt that the emission test data base does not adequately characterize the full range of minerals to which the standards would apply. They recommended including provisions in the standards whereby an operator could petition EPA to establish a specific standard for any facility for which compliance is impossible or impractical.

Response:

The EPA tested emissions from 25 baghouses at 13 different plants, as well as fugitive emissions from 53 sources at these plants. Fugitive emissions were also tested at five plants using wet suppression. Plants tested processed crushed stone (limestone, traprock, granite), feldspar, gypsum, mica, talc, sand, gravel, and clay (kaolin and fuller's earth), and metallic minerals. These materials cover the range of hardness found in the industries, and represent a variety of end uses with different product specifications. The range of particle sizes found in the industries is represented in the test data. Baghouses at kaolin and fuller's earth plants controlling clay emissions with median particle diameters of 1.5 μm to 3.8 μm could meet the proposed stack concentration and opacity standards. Feldspar and limestone facilities with particulate emissions of 20-25 μm median diameter also met the standards. Particle size and type of mineral processed were not found to affect baghouse performance. Tests on the effectiveness of wet suppression also covered a variety of hardnesses and particle sizes. All plants with well designed and operated systems met the fugitive opacity standards.

Since test data adequately covers the variability between industries and between individual plants in each industry, the proposed standards will be applied to all affected facilities in the 18 nonmetallic mineral industries regulated. The standards include provisions to raise the stack opacity limit at individual plants on a case-by-case basis if the concentration limit is met but for some reason opacity cannot be met. This is allowable because the purpose of the opacity standard is to provide a simple indicator of emissions concentration.

Section 111 of the Clean Air Act does not allow EPA to permit each State to establish standards as a substitute for an NSPS or to grant exemptions on a case-by-case basis. The main purpose of standards of performance is to require new sources, wherever located, to reduce emissions to the level achievable by the best technological system of emissions reduction considering the cost of achieving such emission reduction, any nonair quality, health, and environmental impact, and energy requirements. Standards of performance establish a degree of national uniformity to air pollution standards and, therefore, preclude situations in which some States may attract new industries as a result of having relaxed standards relative to other States.

2.10.10 Comment: (IV-D-2)

One commenter stated that the standards would contribute greatly to uniform standards in the nation and would preserve air quality. They felt that the approach and standards appear sound and consistent with their experience.

Response:

The EPA is in agreement with this commenter.

2.11 LEGAL CONSIDERATIONS

2.11.1 Comment: (IV-D-34)

One commenter stated that EPA lacks the authority under the Clean Air Act to regulate air within the workplace. Because the standards define the affected facilities as each piece of equipment at a processing plant and do not allow for a building to be considered a control device, he felt that the standards are regulating the air in the workplace that is not accessible to the general public.

Response:

It was not the EPA's intent to regulate workplace air. The intent of Section 111 of the Clean Air Act is to limit emissions to ambient air. The EPA has revised the proposed regulation to allow for the enclosure of affected facilities in buildings. As explained in Section 2.4.1, buildings enclosing affected facilities must meet the stack standards of 0.05 g/dscm (0.02 g/dscf) and 7 percent opacity if emissions are vented from the building. They must also meet a fugitive emissions standard of no visible emissions escaping the building. If these emission limits are met by enclosing affected facilities in a building, then the emissions control is equivalent to that achieved by using BDT. If these limits are not met, then ambient air quality is being impacted and EPA will require opacity tests at individual affected facilities inside the building to determine whether they are in compliance with fugitive standards. If individual affected facilities are not in compliance, controls must be added to reduce emissions to the ambient air.

2.12 TEST METHODS AND MONITORING

2.12.1 Comment: (IV-D-44)

One commenter stated that when pieces of processing equipment are located next to each other, it would be impossible to ascertain how much dust is coming from each piece of equipment or to state with certainty that each piece meets the required level.

Response:

The EPA believes situations where opacity of emissions from individual affected facilities cannot be read will be rare; however, provisions have been added to §60.675(c) of the regulation clarifying how compliance will be determined if emissions from two or more facilities continuously interfere.

Section 60.675(c) of the proposed and final standards contains stipulations to be followed for using Method 9 to read fugitive emissions. These stipulations emphasize correct positioning of the observer to minimize interference from other emission sources. Following these stipulations, EPA found during its testing program that situations where fugitive opacity could not be measured due to emissions from other pieces of equipment occurred very rarely. And they occur only when wet dust suppression is used as a control technique, and not when emissions are collected by capture systems. In most cases, repositioning of the observer or waiting for a change in wind conditions will allow the observer to read opacity for each facility. In such situations, opacity of emissions from individual affected facilities must be measured to determine compliance. Furthermore, EPA anticipates that the majority of facilities affected by the standards will be at new plants or capacity expansions at existing plants. In these cases, owners may choose to design and locate facilities so emissions from different facilities do not continuously interfere and the opacity of emissions from each facility can be measured.

However, sometimes affected facilities may be located above and below one another so emissions from one facility pass through the other facility, and the emission streams from the facilities are continuously combined. Since it is possible that there may be cases where emissions from two or more facilities continuously interfere, provisions have been added to §60.675(c) clarifying the use of Method 9 in such cases. Under these provisions, if opacity of emissions from a single affected facility cannot be measured due to the continuous interference of emissions from other facilities, then plants may take one of two courses of action: (1) if opacity of the combined emission stream from the interfering facilities meets the highest opacity standard in §60.672 applicable to any of the affected facilities contributing to the emissions, then the facilities will be determined to be in compliance; (2) the equipment may be moved or a physical barrier or ductwork may be installed to separate emissions from each facility. For example, if a screen is located below a crusher controlled by wet suppression and emissions from the two facilities continuously interfere, the owner or operator could meet the standards by showing that combined emissions from the two facilities meet the 15 percent fugitive opacity standard applicable to the crusher, or he could somehow separate emissions from the two facilities and meet the opacity limits for each (10 percent for the screen and 15 percent for the crusher).

Under the standards, the owner or operator would also have the option of capturing the emissions, ducting them to a control device, and meeting the applicable stack and fugitive emissions standards. The economic analysis for the proposed standards assumed emissions from all affected facilities would be captured and ducted to baghouses; and under this assumption the costs of control were found to be reasonable. However, EPA believes offering the other options to show compliance may allow some plants to use a less costly method, such as wet dust suppression, to comply with the regulation.

2.12.2 Comment: (IV-D-10, IV-D-16)

Two commenters disagreed with the monitoring requirements proposed for wet scrubbers. One commenter stated that while he did not oppose the replacement of an opacity standard with monitoring of operating parameters, he suggested that a range be selected during the initial performance test rather than one set of numbers. He said this approach would allow for slight variations in processing conditions such as outside temperature, clay content, and particle size. The other commenter stated that maintaining a given pressure drop and flow rate is no guarantee that the scrubber is achieving the desired efficiency. He also said that under the proposed standards the pressure drops and water flows could vary widely and emission rates could soar, but as long as measurements were recorded, the scrubber would be in compliance.

Response:

The EPA has made additions to Section 60.676 of the standards which address these comments. The section details requirements for periodically recording and reporting scrubber operating parameters.

The EPA has provided for routine variations in operating parameters, but by a different method than that suggested by the first commenter. The owner or operator is required in the final standards to record and report the liquid flow rate and change in pressure of the gas stream at the time of the initial performance test; and these parameters are to be recorded daily thereafter [40 CFR 60.676(c)]. These daily readings need not be reported unless one or more readings vary by more than ±30 percent from the readings of the most recent performance test. If one or more reading does vary by more than ±30 percent, these daily readings must be reported semiannually. The ±30 percent allows for normal variations in process conditions, so selecting a range of values at the time of the initial performance test is not necessary.

In response to the second comment, the recording and reporting of scrubber liquid flow rate and pressure drop will provide an inexpensive and easily verifiable check on the operation and maintenance of wet scrubbers. The principal factors affecting the performance of scrubbers include the pressure drop and the liquid to gas ratio (Docket No. IV-J-1). Monitoring liquid flow rate and pressure drop will allow maintenance personnel to detect and correct decreases in scrubber performance before major breakdowns occur, reducing overall control cost and maintaining control efficiency. Routine recording and reporting will also allow EPA to check that the scrubber is maintained and operated properly indicating that the emission limits continue to be met over time. As described above, daily readings must be recorded and they must be reported to EPA semiannually if one or more readings varies by more than ±30 percent from the readings of the most recent performance test.

2.12.3 Comment: (IV-D-3)

One commenter felt that a stack test should not be required unless the control device fails to meet the stack opacity limit of 7 percent. He felt that if an opacity test is sufficient to show compliance for a noncapture system, it should be the same for a capture and collection system.

Response:

Opacity tests are the only compliance tests required for noncapture systems, because noncapture systems emit fugitive particulate matter emissions. There are no practical methods for measuring mass emissions or particulate concentrations of fugitive emissions. Therefore, opacity or equipment standards are the only formats available for regulating emissions from noncapture systems. The same opacity standard applies to fugitive emissions from both capture and noncapture systems.

Stack emissions from capture systems can be quantified using standard EPA reference methods. A concentration or mass emission standard can, therefore, be developed and enforced. For nonmetallic mineral processing plants it has been determined that a concentration standard of 0.05 g/dscm (0.02 gr/dscf) is achievable using BDT and will result in significant emissions reduction. Performance tests are necessary for enforcement of this standard. The information obtained from performance tests is used by EPA to ensure compliance and also to aid in standards development. Emission test data collected during performance tests will be used in the periodic 4-year review of the NSPS to reevaluate the appropriateness of the emission limits established in the current NSPS.

While performance tests are necessary to ensure compliance with the standards, a less rigorous method has been provided for ensuring that compliance is maintained. The 7 percent stack opacity standard has been provided as an inexpensive and verifiable check on the operation and maintenance of air pollution control devices. It is useful as an indicator of control device performance but does not provide the precision required for a performance test.

The cost of performance tests is reasonable. Performance test costs are a small percentage of the cost of control equipment, and the costs and economic impacts of control have been found to be reasonable in the EPA's economic analyses.

It should be noted that under the General Provisions [40 CFR 60.8(b)], an owner or operator may petition for a waiver of the requirement for performance tests or for the use of an alternative testing method. The Administrator may approve the use of an alternative method for performance testing on a case-by-case basis if he has determined the alternative method is adequate to show compliance. The Administrator may waive the requirement for a performance test in a specific case if the owner or operator has demonstrated by other means to the Administrator's satisfaction that the affected facility is in compliance with the standard.

2.12.4 Comment: (IV-D-39)

One commenter was concerned with the use of EPA Reference Method 9 for reading fugitive emissions. He stated that EPA has already promulgated Reference Method 22 for determining fugitive visible emissions from material processing sources; and he did not understand why the proposed regulation utilizes a method which has inherent weaknesses when used for fugitive and typically intermittent releases, when a more appropriate method exists.

Response:

The EPA's testing program for fugitive emissions from metallic and nonmetallic mineral processing plants was based on Method 9 and showed that Method 9 can be used and is appropriate. The use of Method 22 was attempted and found to be inappropriate. Method 22 measures the accumulated emission time during an observation period, or the frequency of visible fugitive emissions. It is, therefore, only applicable to sources which are intermittent in nature. The affected facilities at nonmetallic mineral processing plants (crushers, grinding mills, screening operations, etc.) are not intermittent; in fact they emit some visible fugitives almost continuously during the time they are operating. Therefore, Method 22 is not appropriate for these sources.

The EPA has determined that an opacity standard is appropriate for this industry, rather than a frequency of emissions standard. Method 9 is the method applicable for the determination of the level of opacity of visible emissions. During the data collection activities in support of these standards, observers trained in the use of Method 9 followed the guidelines of that method with some stipulations in recording visible process fugitive emissions data. These stipulations are included in subsection 60.675(c) of the standards. They clarify correct observer positioning, and contain guidelines for avoiding the confusion of particulate emissions with visible water mist from wet suppression systems. They also clarify the use of Method 9 to determine compliance when emissions from two or more facilities continuously interfere with one another.

2.12.5 Comment: (IV-D-34)

One commenter requested that EPA delete the performance test requirements because they are expensive and burdensome. Instead, he suggested that EPA accept an engineering certification that the air pollution control equipment meets the necessary specifications.

Response:

Performance tests are necessary to gain information and ensure compliance with the standards as explained in Section 2.12.3. Costs of these tests are a small percentage of the capital cost of new plants. The EPA's economic analyses have determined that costs and economic impacts of control are reasonable. Performance tests will not be an unreasonable burden on industry, and will be required.

The approach suggested by the commenter was considered and rejected. The EPA has found that similar facilities with similar control devices often do not have the same emissions characteristics. There are many variables in types of processes, process operating conditions, and control system operation at individual plants which may not be accounted for in an engineering certification and which may greatly influence emissions. Therefore, the use of engineering certifications rather than performance tests for enforcement of the standards would be unreasonable.

2.12.6 Comment: (IV-D-52)

One commenter was concerned about how EPA Reference Method 9 will be used to read emissions from enclosed truck and railcar loading stations. Because the method is unclear as to where the observer should stand, he requested that EPA specifically state that in observing emissions from enclosed truck and railcar loading stations, the observer should stand such that his line of vision is perpendicular to the tracks or road upon which the railcar or truck is being loaded.

Response:

Method 9 and the stipulations for its use contained in Section 60.675(c) of the regulation give adequate guidance on observer positioning. Paragraph 2.1 of Method 9 and the stipulations in the regulation emphasize that the observer should be at least 15 feet from the emission source, and have a clear view of the source and emissions with the sun at his back. The stipulations also state that the observer shall position himself to minimize interference from other fugitive emission sources such as road dust. Paragraph 2.1 of method 9 states that when possible the observer's line of sight should be perpendicular to the direction of flow of the emissions or, if emissions from a rectangular outlet are being observed, to the long axis of the outlet.

2.13 REPORTING AND RECORDKEEPING

2.13.1 Comment: (IV-D-15, IV-D-16)

Two commenters requested that sand and gravel operations, which are wet processes and maintain a high degree of moisture in the processed material, be exempt from reporting and recordkeeping requirements. They said that because EPA recognizes these plants as negligible contributors of particulate emissions, they felt this approach reasonable. While still subjecting the operator to the emission limits of the proposed standards and, therefore, creating no adverse environmental impact, they felt that such an exemption would greatly reduce the paperwork and concurrent economic burden on EPA and State regulatory agencies, as well as on these particular operations. They suggested that one letter from the operator to the State or EPA certifying the material at a plant is processed wet and generates no visible emissions from processing equipment should suffice as notice.

Response:

The only reporting and recordkeeping requirement for plants using wet dust suppression is an initial performance test during which the opacity of emissions from each affected facility must be measured. This is necessary to ensure that the facilities are in compliance with the standards. No further monitoring, reporting, or recordkeeping is required where wet suppression is used, with the following exception: under the provisions of §60.676, the State or EPA regional office and the EPA Office of Air Quality Planning and Standards must be notified if an existing facility is replaced with a new facility of equal or smaller size. Such replacements, however, are not subject to the emission limits of the standards. The reporting and recordkeeping requirements for plants using wet dust suppression, summarized above, are minimal. The EPA has determined that they will not be an unreasonable burden for industry or enforcement agencies. Plants in the sand and gravel industry are subject to the same requirements as plants in other nonmetallic mineral industries.

2.13.2 Comment: (IV-D-24)

One commenter stated that because of the affected facility designation, Federal, State and local agencies will have to track all elements of each processing plant manufactured after August 31, 1983. He felt that such tracking would require diverting field enforcement resources to essentially administrative duties, thus substantially reducing inspection activities. He considered it essential that the tracking, reporting, and other paperwork requirements be reduced before promulgation.

Response:

The EPA or State agencies enforcing the standards would have to track, or keep records of, new equipment at both new plants and capacity expansions at existing plants under either a narrow or broad definition of affected facility. Because of reconstruction provisions, they would also have to track the installation of new equipment at existing plants under the broad or narrow definition of affected facility. Administrative reporting and recordkeeping requirements for these standards are similar to those for other NSPS. The EPA has estimated the agency resource requirements associated with reporting and recordkeeping, and has determined them to be reasonable.

2.13.3 Comment: (IV-D-15, IV-D-16, IV-D-17, IV-D-26, IV-D-35)

Five commenters were concerned about the paperwork burden the proposed standards would put on industry if notification of both State agencies and the Federal EPA is required. They suggested that in cases where the State Implementation Plan (SIP) has been approved, notification to the State agency alone be allowable.

Response:

In States that have been delegated the authority to enforce NSPS, reporting is directly to the State agency. The authority to enforce NSPS is separate from the authority to administer an SIP. In States that have not been granted this authority, the EPA regional office should be notified. In addition, in cases where an existing affected facility is replaced by a new piece of equipment of equal or smaller size, the industry must also notify the Federal EPA Office of Air Quality Planning and Standards as described in 40 CFR 60.676. The reporting and recordkeeping burden on industry has been estimated and found to be reasonable.

2.13.4 Comment: (IV-D-3)

One commenter stated that portable plants which are designed to be moved, set up and put in production quickly should not be subject to the performance test requirements on each move. He felt that the initial performance test at the first site should be sufficient.

Response:

Performance tests for portable plants will be required only at the first site and not at subsequent sites to which they move with two exceptions. First, if a new affected facility is added, a new performance test is required. If emissions from the facility are ducted to an existing baghouse, a new performance test of that baghouse is required. If wet dust suppression is used, only the new affected facility must be tested. The second exception is that if a portable plant moves from one State to another, the new State may require a performance test.

2.14 WORDING OF REGULATION

2.14.1 Comment: (IV-D-3)

One commenter requested that impactor be added to the types of crushers listed in the proposed standards.

Response:

Impactors have been added to the types of crushers listed in the promulgated standards. However, it should be noted that in both the proposed and final standards (48 FR 39576, August 31, 1983; 40 CFR 60.671) a crusher is defined as a machine used to crush any nonmetallic mineral, and includes, but is not limited to, the listed types of machines. Therefore, even if a particular type of crusher is not explicitly listed in the definition, it would still be covered by the standards.

2.14.2 Comment: (IV-D-13, IV-D-14, IV-D-15, IV-D-16, IV-D-17, IV-D-26, IV-D-35)

Seven commenters asked for clarification as to which conveying systems are subject to the standards and which are exempt. In addition, they requested clarification on which portions of the conveying systems are covered.

Response:

Belt conveyors are the designated affected facility, however, only transfer points must comply with the emissions limits. In the preamble to the proposed regulation, it is clearly stated that conveying, other than transfer points, is not covered (48 FR 39568, August 31, 1983). In the regulation, belt conveyors are designated as an affected facility for purposes of determining if existing facilities are subject to modification or reconstruction provisions (40 CFR 60.670). The standards for particulate matter state that no owner or operator "shall cause to be discharged into the atmosphere from any transfer point on belt conveyors or from any other affected facility any fugitive emissions which exhibit greater than 10 percent opacity . . ." [40 CFR 60.672(b)]. A transfer point is defined as "a point in a conveying operation where the nonmetallic mineral is transferred to or from a belt conveyor except where the nonmetallic mineral is being transferred to a stockpile" (40 CFR 60.671). Thus, belt conveyors are the affected facility, but only transfer points must meet the emission limits.

2.14.3 Comment: (IV-D-15, IV-D-16, IV-D-17, IV-D-26, IV-D-35)

Five commenters requested clarification as to when the 2-year period begins for consideration for the reconstruction provisions. In addition, they were confused about whether a continuous program of component replacement is one which is proposed or initiated within a 2-year period or one in which the equipment is actually installed within a 2-year period.

Response:

The 2-year period begins when reconstruction is commenced. "Commenced" is defined in the General Provisions (40 CFR 60.2) as meaning that an owner or operator has undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake or complete, within a reasonable time, a continuous program of construction or modification.

There is not a single 2-year period that begins on any specified date. Rather, EPA will aggregate any continuous programs of component replacement that begin within any 2-year period in determining whether "[t]he fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility . . . " [40 CFR 60.15(b)(1)] (the "50 percent test"). For example, suppose that an owner or operator of an existing facility begins program A of component replacement in month 1, program B in month 40, program C in month 60, and program D in month 80, and that programs B and C, considered together, meet the 50 percent test in 40 CFR 60.15(b)(1). Since programs B and C commenced within a 2-year period (20 months apart), the 50 percent test would be satisfied (regardless of programs A and D, and regardless of when programs B and C are finished).

2.14.4 Comments: (IV-D-15, IV-D-16, IV-D-17, IV-D-26, IV-D-35)

Five commenters requested clarification on the first notification requirement. The General Provisions [40 CFR 60.7(a)(1)] require notification of the date construction of an affected facility is commenced. However, §60.7(a)(1) goes on to say that this requirement does not apply in the case of mass-produced facilities which are purchased in completed form. They were confused as to when the notification must be submitted. They suggested that the definition of mass-produced facilities is needed in the standards.

Response:

A mass-produced facility is one which is purchased in completed form. The first notification required under 40 CFR 60.7 is a notification of the anticipated date of initial startup postmarked between 30 and 60 days prior to such date.

2.14.5 Comment: (IV-D-18, IV-D-26, IV-D-27)

Three commenters believed the definitions of fixed and portable plants in the regulation need clarification. They were concerned that the connecting of a portable facility to a power source could cause the plant to be considered a fixed plant. The commenters noted that the definition of portable plant as presented in the proposed regulation is: "any nonmetallic mineral processing plant that is mounted on any chassis or skids and may be moved by the application of a lifting or pulling force. In addition there shall be no cable, chain, turnbuckle, bolt or other means by which any piece of equipment is attached or clamped to any anchor, slab, or structure, including bedrock, that must be removed prior to the application of a lifting or pulling force for the purpose of transporting the unit." They suggested the definition be modified to exempt electrical connections because other regulations in the Federal Mine and Safety Act of 1977 state that all plants that are electrically powered shall be properly grounded. One commenter suggested the following wording as the definition of a portable plant: "Portable facility means any nonmetallic processing facility mounted on any chassis or skids and which may be moved from site to site with the application of a lifting or pulling force." In addition, one commenter requested that the fixed plant definition be changed to read as follows: "Fixed plant means any nonmetallic mineral processing plant at which the processing equipment specified in Subsection 60.670(a) is attached by a cable, chain, turnbuckle, bolt or other means to any anchor, slab or structure including bedrock."

Response:

The definition of fixed plant has been modified in the promulgated regulation as the commenter suggests. The portable plant definition in 40 CFR 60.671 has also been revised. It now reads,

> "Portable plant means any nonmetallic mineral processing plant that is mounted on any chassis or skids and may be moved by the application of a lifting or pulling force. In addition, there shall be no cable, chain, turnbuckle, bolt, or other means (except electrical connections) by which any piece of equipment is attached or clamped to any anchor, slab, or structure, including bedrock, that must be removed prior to application of a lifting or pulling force for the purpose of transporting the unit."

2.14.6 Comment: (IV-D-36)

One commenter requested that all operations exempted be stated in the regulation. He recommended exemptions be stated for the following operations: haul roads, stockpiles, blasting, loading at the mine, conveying (other than at transfer points), waste piles, truck and railcar loading and unloading, and mining operations such as excavation and stripping.

Response:

In the regulation (40 CFR 60.670 and 60.671), EPA has provided a legal definition of those nonmetallic mineral processing facilities that are "affected" by the regulation. The EPA does not provide a list of "non-affected" facilities in the regulation because it would be impractical to attempt to devise a complete list of the many facilities which are not covered. Furthermore, questions would arise as to the legal standing of nonmetallic mineral facilities or operations that were not specifically listed as either "affected" or "non-affected".

In the preamble to the proposed regulation (48 FR 39568, August 31, 1983) EPA discussed the rationale for exempting from the proposed standards certain operations or facilities at nonmetallic mineral plants (including those the commenter lists). This discussion was intended to provide the public with background information, and is not appropriate to include in the regulation.

2.14.7 Comment: (IV-D-36)

One commenter suggested that the language of subsection 60.675(c) be revised as follows:

"When determining compliance with the standard prescribed under subsections 60.672(b) and (c), the Administrator shall adhere to the following stipulations in addition to those listed in Method 9." Additionally, he requested that both subsection 60.675(c) and Method 9 be amended to clarify that water mist from wet dust suppression and steam plumes from operations should not be confused with particulate matter emissions and are not to be considered visible emissions.

Response:

Subsection 60.675(c) has been reworded to include the wording "stipulations in addition to those listed in Method 9", as requested by the commenter. Paragraph 2.3 of Method 9 adequately discusses water vapor. It states,

> When condensed water vapor is present within the plume as it emerges from the emission outlet, opacity observations shall be made beyond the point in the plume at which condensed water is no longer visible . . . . When water vapor in the plume condenses and becomes visible at a distinct distance from the emission outlet, the opacity of emissions should be evaluated at the emission outlet prior to the condensation of water vapor and the formation of the steam plume.

Paragraph 60.675(c)(3) of the regulation includes further clarification for the use Method 9 when water mist generated by wet dust suppression is present. The paragraph is as follows:

> (3) For affected facilities utilizing wet dust suppression for particulate matter control, a visible water mist is sometimes generated by the spray. The water mist must not be confused with particulate matter emissions and is not to be considered a visible emission. When a water mist of this nature is present, the observation of the emissions is to be made at a point in the plume where the mist is no longer visible.

2.14.8 Comment: (IV-D-26)

One commenter stated that portable plants in the crushed stone industry are composed of several affected facilities, all of which do not necessarily process the full throughput of the primary crusher. He felt the 150 tons/hr exemption should be applied to each facility instead of the whole plant. He suggested section 60.670 be reworded to state clearly that any portable facilities with capacities below those specified are exempt from these regulations.

Response:

The EPA recognizes that affected facilities within a plant often vary in capacity. In order to analyze economic impacts using discounted cash flow (DCF) analysis, however, EPA had to assume a production level for the entire plant and assess profitability of the portable plant as a whole. This is because individual pieces of equipment do not make saleable products. Since exemptions are based on economic analysis of plant profitability or feasibility and it is necessary to include the whole plant in this analysis, exemptions are based on plant size rather than size of individual affected facilities.

The determination of plant capacity will be based on the rated capacity of initial crushers that are part of the plant. An initial crusher is any crusher into which nonmetallic minerals can be fed without prior crushing in the plant. If a plant has only one initial crusher, the plant capacity will be considered equal to the rated capacity of the initial crusher. If the plant has two or more initial crushers, their rated capacities shall be added together to determine plant capacity. Production lines are composed of initial crushing and screening operations, which may be followed by secondary crushing, grinding, and screening operations. A variety of sizes of crushed products may be produced by the same line, since material may be screened off and sold as product at various points in the production line. Thus, some of the output of the initial crusher may become product without passing through secondary crushers. For this reason, initial crushing equipment will be used to determine the capacity of the plant.

2.15 MISCELLANEOUS

2.15.1 Comment: (IV-D-23)

One commenter complained that the exemption for portable sand and gravel and crushed stone plants is too broad and lenient and allows operation of a new portable plant without controls at a larger capacity than allowed for a fixed plant. He suggested that any exemption should be conditioned to require specific control equipment when the portable plant operates, or plans to operate, at a specific quarry/site for 6 months or more without an inter-quarry movement. Further, he suggested that plant intra-quarry moves should be excluded as a basis for exemption from controls. Finally, he stated that the standards should not be relaxed as they provide a minimum control technology base for BACT considerations.

Response:

The EPA has conducted separate analyses addressing operating conditions at portable plants and at fixed plants because they are two distinctly different types of plants with different modes of operation. The results of the analyses of economic feasibility showed that the cut off size for exemption from the regulation should be different for portable and fixed plants. Under Section 111(b) of the Clean Air Act, the Administrator is empowered to distinguish among classes, types, and sizes within categories of new sources for the purpose of establishing standards.

It is not possible to base exemptions and control requirements on the length of time a portable plant operates in one location. The commenter suggests a 6 month cut off time. However, in many cases, an operator does not know how long he will remain in one location. Therefore, the operator and EPA would not be able to determine whether a plant should be covered by the regulations until after the fact.

Intra-quarry moves are made by portable plants to reduce the need for haul trucks to transport newly blasted rocks to the primary crusher. This mode of operation must be considered in the analysis of portable plants. If it were not considered, portable plants would be forced to operate identically to stationary plants within a quarry. Portable plants form a different class or type of plant from fixed plants and are a necessary segment of the nonmetallic mineral industry. The EPA is authorized under the Clean Air Act to distinguish between types and classes of plants within a source category and has done so in this case.

2.15.2 Comment: (IV-D-50, IV-D-24, IV-D-36)

One commenter (IV-D-50) favored the exemptions for fixed crushed stone and sand and gravel plants with capacities of 25 tons/h or less and portable plants with capacities of 150 tons/h or less. The other two commenters (IV-D-24 and IV-D-36) requested that the cutoff sizes be raised for portable and stationary sand and gravel and crushed stone plants to 300 tons/h for portable plants and 100 tons/h for stationary plants. These two commenters also requested exemptions for plants operating in remote areas where there are no air quality problems and no impacts on persons or property. One commenter suggested that a higher minimum capacity be exempted for plants in the Western United States for this reason. The other commenter felt that all remotely sited plants should be exempted.

Response:

The EPA's discounted cash flow (DCF) analysis showed that it probably would not be economically feasible to control fixed crushed stone and sand and gravel plants with capacities of 23 Mg/h (25 tons/h) or less, common clay plants with capacities of 9 Mg/h (10 tons/h) or less, and portable plants with capacities of 136 Mg/h (150 tons/h) or less (EPA-450/3-83-001a), so these plants were exempted from the regulation. However, for all larger sized plants the analysis did not indicate clear economic infeasibility. The conservative assumptions upon which the DCF analysis was based are explained in Section 2.5.4.

The cutoff points were set at the sizes listed above because the economic analysis shows that even if the worst case assumptions noted in Section 2.5.4 are relaxed, the economic viability of plants of these and smaller sizes remains in doubt. On the other hand, for plants larger than these sizes, the benefits of "economies of scale" increase the profitability of these plants so that NSPS costs are significantly less burdensome. Finally, it should be noted that although the economic analysis is inconclusive about the economic feasibility of some larger sized model plants with NSPS controls, it is highly unlikely that all worst case assumptions would hold true for any plants. In reality, if only one or two of the worst case assumptions are relaxed, the plants of sizes larger than those exempted are shown to be economically feasible.

Plants in remote areas are not exempt from the regulation. Once a source category has been determined to impact health and welfare and has been included on the priority list, NSPS must be promulgated. The main purpose of NSPS is to require new sources, wherever located, to reduce emissions to the level achievable by the best technological system of emission reduction considering the cost of achieving such emission reduction, any nonair quality health and environmental impact, and energy requirements (Section 111(a)(1)). One intent of the Act is to prevent air quality degradation due to industrial growth. Another purpose of NSPS is to establish a degree of national uniformity to air pollution standards and, therefore, preclude situations in which some States may attract new industries as a result of having less stringent standards than other States. Exempting plants on the basis of remoteness would be contrary to these purposes of the Clean Air Act. The EPA's economic analyses have determined that the costs and economic impacts of control are reasonable for all sizes and types of plants covered under the standard regardless of location and remoteness.

2.15.3 Comment: (IV-D-26)

One commenter submitted comments that had previously been presented to the EPA at the National Air Pollution Control Techniques Advisory Committee (NAPCTAC) meetings in September 1975 and July 1978, but he felt these comments had never been adequately addressed. These comments address the draft standards that were being developed for only the crushed stone processing industry and the later draft standards for the entire nonmetallic mineral processing industry. The commenter stated in his earlier comments that crushed stone and sand and gravel are highly competitive commodities in those areas where both exist and that EPA was acting in a discriminatory manner by subjecting only the crushed stone industry to a set of standards. The commenter also stated that the standards under consideration at that time (October 1975) would require energy demands as high as 28 percent of the total energy being consumed by a crushed stone plant, and this would have a regressive impact upon the industry. He also was concerned that if a piece of equipment experienced a major malfunction, it might take as long as 60 days before a permit would be granted to replace the equipment. The commenter was concerned that the cost of disposing of fines collected in baghouse was being underestimated and that the economic impact analysis was not based on the producer's profit margin. The commenter also stated that because individual plants would be impacted at different times, plants could be at a serious economic disadvantage as a result of the standards. The earlier comments included a request to consider wet dust suppression systems as BDT.

Response:

In 1973, EPA began developing standards for the crushed stone processing industry. Draft standards and the associated background information were presented at a NAPCTAC meeting in July 1975. In July 1977, the crushed stone processing industry was combined with other nonmetallic mineral processing industries for standards setting purposes because of the similarities between the equipment used at their plants and the potential for particulate matter emissions from the equipment. Draft standards and the associated background information were presented by EPA at a NAPCTAC meeting in July 1978. Standards of performance for the nonmetallic mineral processing industry were proposed on August 31, 1983. The comments submitted by the commenter were previously submitted on a number of occasions (see docket entries II-D-17, II-D-19, and II-E-4). These comments have been given consideration by EPA each time. In fact, the standards cover the sand and gravel processing industry as well as the crushed stone processing industry.

The standards also allow for the use of wet dust suppression systems. Because of the allowance of wet dust suppression systems, the energy impact of the standards is much lower than that of the earlier draft standards that the comments are based on.

The cost of disposal of collected fines has been evaluated by EPA and found to be minimal (see Comment 2.5.10). The commenters concern about the impact of the cost of the standards on the producer's profit margin has also been evaluated and found to be reasonable by EPA (see Comment 2.5.11). In preparing the economic impact analysis, EPA considered that the ability of individual producers to pass NSPS costs to consumers could be hindered because of competition from plants that were not covered by the NSPS (see Comment 2.5.15).

The commenter's concern about the potential of a 60 day delay in obtaining a permit to replace broken equipment has also been addressed in the final standards. As long as an operator replaces the broken equipment with a new piece of equipment that is of equal or smaller size, the standards only require that the operator report the replacement to EPA and notify the Federal EPA Office of Air Quality Planning and Standards as described in 40 CFR 60.676.

2.15.4 Comment: (IV-D-40)

One commenter stated that it has been his past experience with the officials in Rules and Standards that they do not have the hands-on knowledge needed to understand what the problems could be when the individuals in the field try to achieve the desired results.

Response:

Industry has been provided with opportunities to communicate such problems to EPA at many stages during the standards development process. During standards development activities, EPA representatives have made approximately 60 visits to plants in 24 States. The EPA conducted stack tests at 17 baghouses, at 8 nonmetallic mineral plants, and at 8 baghouses at 5 metallic mineral processing plants. Fugitive emissions from 53 operations at 13 plants using baghouses, and from 36 facilities at 6 plants using wet suppression were tested. In addition, EPA reviewed test data from other sources. During standards development, two NAPCTAC meetings were held (in September 1975 and July 1978), and EPA held 15 other meetings with industry or trade association representatives. The EPA also held numerous telephone conversations and corresponded with industry representatives. Industry representatives submitted comments on the proposed standards which were considered and addressed prior to promulgation. Records of the above plant visits, tests, meetings, correspondence and all other references used in standards development are included in the project docket (Docket No. OAQPS 78-11) which is open to the public. Information which EPA lacked was supplied by these contacts with industry representatives.

The EPA's record shows that comments on problems industry may face are solicited and given appropriate consideration. Furthermore, standards are periodically reviewed and revised as necessary every 4 years, so future industry comments on the promulgated standards will be considered during such revisions.